

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: December 11, 2000, 10:40:03 ; Search time 15.22 Seconds  
(without alignments)  
662.955 Million cell updates/sec

Title: US-09-270-910-37-COPY

Perfect score: 818  
Sequence: 1 GFVNYETETTSVIPARLFK.....GETLLRAVESYLLAHSDAYN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_65:\*

1: pir1:\*\n2: pir2:\*\n3: pir3:\*\n4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	810	99.0	160	2	S05376 major pollen aller
2	790	96.6	160	2	G55699 major pollen aller
3	785	96.0	160	2	D55699 major pollen aller
4	784	95.8	160	2	E55699 major pollen aller
5	782	95.6	160	2	C55699 major pollen aller
6	781	95.5	160	2	F55699 major pollen aller
7	775	94.7	160	2	I55699 major pollen aller
8	735	89.9	160	2	A57427 major pollen aller
9	729	89.1	160	2	A55699 major pollen aller
10	725	88.6	160	2	H55699 major pollen aller
11	717	87.7	160	2	B55699 major pollen aller
12	702	85.8	160	2	S47250 gene 1-Sc1 protein
13	698	85.3	159	2	S47251 gene 1 Sc2 protein
14	616	75.3	160	2	S30054 major allergen Cor
15	616	75.3	160	2	S30055 major allergen Cor
16	610	74.6	160	2	S30053 major allergen Cor
17	607	74.2	160	2	S47249 gene 1-Sc3 protein
18	603	73.7	160	2	S30056 major allergen Cor
19	540	66.0	160	2	T17005 major allergen Mal
20	529	64.7	160	2	T17006 major allergen Mal
21	525	64.2	160	2	T17007 major allergen Mal
22	500.5	61.2	159	2	T17004 major allergen Mal
23	460.5	56.3	159	2	JC4276 Mal1 allergen Mal
24	442.5	54.1	153	2	S51119 Mal1 protein - ap
25	415.5	50.8	157	2	T09659 pathogenesis-relat
26	410.5	50.2	157	2	T09659 stress response ge
27	381	46.6	158	2	T06527 pathogenesis-relat
28	377	46.1	158	2	S42650 pathogenesis-relat
29	376	46.0	158	2	S20518 hypothetical prote

30	369.5	45.2	159	2	T06768 disease resistance
31	365	44.7	156	2	S47140 pathogenesis-relat
32	365	44.6	156	1	SNR1 pathogenesis-relat
33	362	44.3	155	2	S52664 pathogenesis-relat
34	362	44.3	158	2	S20517 hypothetical prote
35	357.5	43.7	155	1	SNR2 pathogenesis-relat
36	357.5	43.7	155	2	pathogenesis-relat
37	337.5	41.3	155	2	S35162 pathogenesis-relat
38	337.5	41.3	155	2	S35161 pathogenesis-relat
39	334.5	40.9	158	2	S12568 pathogenesis-relat
40	327.5	40.0	157	2	S42649 pathogenesis-relat
41	312	38.1	178	2	T07403 TSI-1 protein - to
42	311	38.0	155	2	S04552 pathogenesis-relat
43	309.5	37.8	154	2	S63984 major allergen Api
44	307	37.5	155	2	S04553 pathogenesis-relat
45	297	36.3	155	2	T14918 pathogenesis-relat

## ALIGNMENTS

```
RESULT 1
S05376
Major pollen allergen Bet v 1 - European white birch
C:Species: Betula pendula (European white birch)
C:Date: 31-Mar-1990 #sequence_revision 31-Mar-1990 #text_change 04-Feb-2000
C:Accession: S05376; JC4834; B53288
R:Bretteneder, H.; Pettenburger, K.; Balto, A.; Valenta, R.; Kraft, D.; Rumpold, H.; S
EMBO J. 8, 1935-1938, 1989
A:Title: The gene coding for the major birch pollen allergen Betv1, is highly homolo
A:Reference number: S05376; MUID:9005395
A:Accession: S05376
A:Molecule type: mRNA
A:Residues: 1-160 <BRE>
A:Cross-references: EMBL:X15877; NID:g17937; PIDN:CAA33887.1; PID:g17938
R:Kunzl, A.D.; Susani, M.; Lindemann, A.; Machius, M.; Visser, A.J.W.G.; Scheiner, C
Biochem. Biophys. Res. Commun. 223, 187-192, 1996
A:Title: Evidence for an alpha helical T cell epitope in the C-terminus of the ma
A:Reference number: JC4834; MUID:96254050
A:Accession: JC4834
A>Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-160 <KUN>
R:Rippen, H.; Hansen, O.C.
Mol. Immunol. 28, 1279-1288, 1991
A:Title: The NH2-terminal amino acid sequence of the immunochemically partial ide
s) Car b 1 and oak (Quercus alba) Que a 1 pollens.
A:Reference number: A53288; MUID:92072607
A:Accession: B53288
A>Status: preliminary
A:Molecule type: Protein
A:Residues: 2-39, 'XX', 42-44 <IPS>
A:Cross-references: PID:g239734; PIDN:AAB20452.1
A:Experimental source: pollen
A:Note: sequence extracted from NCBI backbone (NCBIP:68408)
C:Comment: This protein induces IGE synthesis by B cells in a T cell dependent manner
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
F:2-160/Product: major pollen allergen Bet v 1 #status experimental <MAT>

Query Match 99.0%; Score 810; DB 2; Length 160;
Best Local Similarity 98.7%; Pred. No. 1.7e-64;
Matches 157; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNYETETTSVIPARLFKAFILDSGNLPPVAPPAISVENSISGSGPGTIKTSPE 60
DB 2 GFVNYETETTSVIPARLFKAFILDSGNLPPVAPPAISVENSISGSGPGTIKTSPE 61
QY 61 GFPEKVKRVDVDEVDHTNFKYNSVLEGPGIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 62 GFPEKVKRVDVDEVDHTNFKYNSVLEGPGIDTLEKISNEIKIYATPDGGSILKISNKY 121
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submitted to the EMBL Data Library, January 1994

A:Reference number: S41896

A:Accession: S41901

A>Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-160 <SW2>

A:Cross-references: EMBL:X77270; NID:9452737; PIDN:CA54486.1; PID:9452738

A>Note: the source is designated as Betula verrucosa

C:Superfamily: pathogenesis-related protein

C:Keywords: pollen

F:2-160/Product: major pollen allergen Bet v 1d/h #status experimental <MAT>

F:83/Binding site: carbohydrate (Asn) (covalent) #status absent

#### Query Match

95.6%; Score 782; DB 2; Length 160;

Best Local Similarity 94.3%; Pred. No. 5.1e-62;

Matches 150; Conservative 4; Mismatches 5; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 60

Db 2 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 61

QY 61 GLPFRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 120

Db 62 GPFPRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 121

QY 121 HTKGDHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 159

Db 122 HTKGNHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 160

#### RESULT 6

F55699

major pollen allergen Bet v 1g - European white birch

C:Species: Betula pendula (European white birch)

C:Date: 01-Dec-1995 #sequence\_revision 01-Dec-1995 #text\_change 20-Aug-1999

C:Accession: F55699; S41896

R:Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner, ch. M.

J. Biol. Chem. 270, 2607-2613, 1995

A:Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chroma

A:Reference number: A55699; M0ID:95155322

A:Accession: F55699

A:Molecule type: mRNA

A:Residues: 1-160 <SWO>

A:Cross-references: EMBL:X77269; NID:9452727; PIDN:CA54485.1; PID:9452728

A>Note: the source is designated as Betula verrucosa

C:Superfamily: pathogenesis-related protein

C:Keywords: pollen

F:2-160/Product: major pollen allergen Bet v 1g #status experimental <MAT>

F:83/Binding site: carbohydrate (Asn) (covalent) #status absent

#### Query Match

95.5%; Score 781; DB 2; Length 160;

Best Local Similarity 93.7%; Pred. No. 6.3e-62;

Matches 149; Conservative 6; Mismatches 4; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 60

Db 2 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 61

QY 61 GLPFRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 120

Db 62 GPFPRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 121

QY 121 HTKGDHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 159

Db 122 HTKGNHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 160

#### RESULT 7

I55699

major pollen allergen Bet v 1l - European white birch

C:Species: Betula pendula (European white birch)

C:Date: 01-Dec-1995 #sequence\_revision 01-Dec-1995 #text\_change 20-Aug-1999

C:Accession: I55699; S41904

R:Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner, ch. M.

J. Biol. Chem. 270, 2607-2613, 1995

A:Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid ch

A:Reference number: A55699; M0ID:95155322

A:Accession: I55699

A:Molecule type: mRNA

A:Residues: 1-160 <SWO>

A:Cross-references: EMBL:X77273; NID:9452743; PIDN:CA54489.1; PID:9452744

A>Note: the source is designated as Betula verrucosa

C:Superfamily: pathogenesis-related protein

C:Keywords: pollen

F:2-160/Product: major pollen allergen Bet v 1l #status experimental <MAT>

F:83/Binding site: carbohydrate (Asn) (covalent) #status absent

#### Query Match

94.7%; Score 775; DB 2; Length 160;

Best Local Similarity 93.1%; Pred. No. 2.1e-61;

Matches 148; Conservative 5; Mismatches 6; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 60

Db 2 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 61

QY 61 GLPFRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 120

Db 62 GPFPRKYKDRVDEVDHTNFKNYSVIEGPGIDTLEKISNEIKIVATPDGGSILKISNKY 121

QY 121 HTKGDHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 159

Db 122 HTKGNHEVKAQYKASKEMETLLRAVESYLLAHSADAYN 160

#### RESULT 8

A57427

major pollen allergen Bet v 1m/n - European white birch

C:Species: Betula pendula (European white birch)

C:Date: 01-Dec-1995 #sequence\_revision 01-Dec-1995 #text\_change 20-Aug-1999

C:Accession: A57427; S49450

R:Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheine

ch. M.

J. Biol. Chem. 270, 2607-2613, 1995

A:Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chr

A:Reference number: A55699; M0ID:95155322

A:Accession: A57427

A:Molecule type: mRNA

A:Residues: 1-160 <SWO>

A:Cross-references: GB:X81972; NID:9807868; PIDN:CA57497.1; PID:9551640

R:Engel, E.; Kraft, D.; Scheiner, O.; Breitenbach, M.; Ferreira, F.

submitted to the EMBL Data Library, October 1994

A:Description: Isoforms of BETV1, the major birch pollen allergen, analyzed by liquid

A:Reference number: S49450

A:Accession: S49450

A:Molecule type: mRNA

A:Status: preliminary

A:Residues: 1-160 <ENG>

A:Cross-references: EMBL:X82028; NID:9807869; PIDN:CA57550.1; PID:9558561

A>Note: the source is designated as Betula verrucosa

C:Superfamily: pathogenesis-related protein

C:Keywords: pollen

F:2-160/Product: major pollen allergen Bet v 1m/n #status experimental <MAT>

F:83/Binding site: carbohydrate (Asn) (covalent) #status absent

#### Query Match

89.9%; Score 735; DB 2; Length 160;

Best Local Similarity 88.7%; Pred. No. 7.2e-58;

Matches 141; Conservative 8; Mismatches 10; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 60

Db 2 GVENYETETTSVIPARLFRAFLIDGDNLFPPKVAPOAISSEVENISGNGGPGTIIKISFPE 61

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OY      61 GLPEKTVKDVADEVDHNNEFKNYSVIEGGPIGDTLEKISNEIKIVATPPDGSILTKSNKY   120
          | |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
DB       62 GSFPKTYKERVEDVDHAFNKYSYMIEGGALGDLTLEKIENEIKNIVATPDGGSILTKSNKY   121
          | |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
OY      121 HTRKGDEVKAQVKASKEMGETLLRAVESYLLAHSDAYN    159
          |||||::||:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:~
DB       122 HTRKGDEMKAEHMKAIRKEKGALLRAVESYLLAHSDAYN    160
          |||||::||:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:~

RESULT     9
A55699
major pollen allergen Bet v lb - European white birch
C:Species: Betula pendula (European white birch)
C>Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 20-Aug-1999
C:Accession: A55699; S41401
R:Swboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner,
  ch., M.
J. Biol. Chem. 270, 2607-2613, 1995
A>Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chroma
A:Reference number: A55699; MUID:95155322
A:Molecule type: mRNA
A:Residues: 1-160 <SMO>
A:Cross-references: EMBL:X77200; NID:g450884; PIDN:CAAS4421.1; PID:g450885
C>Note: The source is designated as Betula verrucosa
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
F:2-160/Product: major pollen allergen Bet v lb #status experimental <Mat>

Query Match           89.1%; Score 729; DB 2; Length 160;
Best Local Similarity 88.1%; Pred. No. 2.4e-57;
Matches 140; Conservative 8; Mismatches 11; Indels 0; Gaps 0;

OY      1 GVFNYESETTSVIPAAFLFAFIILDGNLFPKVAPQAISVENISNGSGPGTIKKISFPE    60
          |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
DB       2 GVFNYESETTSSVIPAAFLFAFIILEGDLTPRKVPQAQSIVENISENGSGPCTIKKITPFPE    61
          | |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
OY      61 GLPEKTVKDVADEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPPDGSILTKSNKY   120
          | |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
DB       62 GSFPKTYKERVEDVDHAFNKYSYMIEGGALGDLTLEKIENEIKNIVATPDGGSILTKSNKY   121
          | |||||::|||||::|||:::||:|||||::|||||::|||||::|||||::|||||::
OY      121 HTRKGDEVKAQVKASKEMGETLLRAVESYLLAHSDAYN    159
          |||||::||:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:~
DB       122 HTRKGDEMKAEHMKAIRKEKGALLRAVESYLLAHSDAYN    160
          |||||::||:|:~

RESULT     10
H55699
major pollen allergen Bet v lk - European white birch
C:Species: Betula pendula (European white birch)
C>Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 20-Aug-1999
C:Accession: H55699; S41903
R:Swboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner,
  ch., M.
J. Biol. Chem. 270, 2607-2613, 1995
A>Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chroma
A:Reference number: A55699; MUID:95155322
A:Molecule type: mRNA
A:Residues: 1-160 <SMO>
A:Cross-references: EMBL:X77272; NID:g458478; PIDN:CAA54488.1; PID:g452742
A>Note: The source is designated as Betula verrucosa
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
F:2-160/Product: major pollen allergen Bet v lk #status experimental <Mat>
```

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Oy      1  GFVNFETETSTVTPARLFKAFILIDGDMLFPRVAPQALSSVENSISNGPGTIKKISPE 60
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      2  GFVNFESSTSTVTPARLFKAFILLEGDTILIKVAPQALSSVENIEGNGPGTIKKITFE 61
Oy      61  GLEPFYVADRDVEVDHNTFKNTSYIEGCGPIGDILIKTSNEIKIYATPDGGSILIKSKY 120
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      62  GSPFFYVPERVEDVDHNAFKYSYSIMIEGAGLDITLEKICNKIKIYATPDGGSILIKSKY 121
Oy      121  HTKGDEHVKAEQVSKASEMGETILRAVESYLLAHSDAYN 159
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      122  HTKGDEHMKAKHMKAIKKEGALLRAVESYLLAHSDAYN 160
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT  11
B55699
major pollen allergen Bet v 1c - European white birch
C:Species: Betula pendula (European white birch)
C:Date: 01-Dec-1995 ;sequence_revision 01-Dec-1995 #text_change 20-Aug-1999
C:Accession: B55699; S41897
R:Swoboda, I., Jilek, A., Ferreira, F., Engel, E., Hoffmann-Sommergruber, K., Scheu-
ch, M.
J. Biol. Chem. 270, 2607-2613, 1995
A:Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chr
A:Reference number: A55699; MUID:95155322
A:Accession: B55699
A:Molecule type: mRNA
A:Residues: 1-160 <SMO>
A:Cross-references: EMBL:X71265; NID:9452729; PIDN:CA54481.1; PID:9452730
A:Note: the source is designated as Betula verrucosa
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
C:2-160/Product: major pollen allergen Bet v 1c #status experimental <Mat>

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Query Match      87.7%; Score 717; DB 2; Length 160;
Best Local Similarity 86.8%; Fred. No. 2.8e-56;
Matches 138; Conservative 9; Mismatches 12; Indels 0; Gaps 0;

Oy 1 GFVFEYETISVPARLFKAFILGDNDNFPPVAPQAIISSVENISGNGSGPTIKRISPE 60
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 2 GFVFESETTSVIPARLFLKAFILRGDTLLIRKVAPOAISSVENIEGNGGGFTIKITPFE 61

Oy 61 GLFPEVKDRVDVDHTNFRNYNSYIEGGPIGDTLEKISNEIKIVATPDGSILTKISNKY 120
    |::::|::|::::|::|::::|::|::::|::|::::|::|::::|::|::::|::|::::|
Db 62 GSFPKYKERVDVDHANKFKYSYSMIEGALGDTLEKICNRIKVATPDGSIILTKISNKY 121

Oy 121 HTKGDEHVKAQYKASKEMGETLLRAVESYLIAHSDAYN 159
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 122 HTKGDEMKAHHMKAIKEKGALLRAVESYLIASHDAYN 160

RESULT 12
S47250
gene 1-scl protein - European white birch
C:Species: Betula pendula (European white birch)
C>Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 20-Aug-1999
C:Accession: S47250
R:Swoobda, I.; Scheiner, O.; Heberle-Bors, E.; Vicente, O.
submitted to the EMBL Data Library, August 1994
A:Reference number: S47249
A:Accession: S47250
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-160 <WMO>
A:Cross-references: EMBL:X77599; NID:q534909; PIDN:CAAS4694.1; PID:q534910
A>Note: the source is designated as Betula verrucosa
C:Superfamily: pathogenesis-related protein

```

**QY** 1 GVFNFETTSVLPAAALFAAFILDDGNLPPKPAAPASVENISGNGSPGTIKKISPE 60  
|||:::||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
**Db** 2 GVFPVEEETTSLVPAAALFAAFILDDGNLLPKPAPTVCSENIIEENGGPGTIKKITPE 61  
|||||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
**QY** 61 GLPFKYAKDRDVEDHNTFNKYNSVIEGGPIGDTEKESINERIVATPPGGSILISKNY 120  
| |||||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
**Db** 62 GSPPKIYKERDVEDHNEFTSYISVLEGAVSDTLERICKELIYPAPGGSSILISKNY 121  
|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
**QY** 121 HTKGDEHWKAQYNAKREMETILLRAVESYLASHDAYN 159  
|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
**Db** 122 HTKGNHEMKAEQIKASKEREKALEFRAVESILLASHDAYN 160

## RESULT 13

gene 1 SC2 protein - European white birch  
C:Species: *Betula pendula* (European white birch)  
C:Date: 06-Jan-1995 #sequence\_revision 06-Jan-1995 #text\_change 20-Aug-1995  
C:Accession: S47251  
R:Swoboda, I.; Scheiner, O.; Heberle-Bors, E.; Vicente, O.  
submitted to the EMBL Data Library, August 1994  
A:Reference number: S47249  
A:Accession: S47251  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-159 <SWO>  
A:Cross-references: EMBL::X77600; NID:g534899; PIN:CAAS4695.1; PID:g534900  
A:Note: the source is designated as *Betula verrucosa*  
C:Superfamily: pathogenesis-related protein

Query Match	85.3%;	Score 698;	DB 2;	Length 159;
Best Local Similarity	84.3%;	Pred. No. 1.3e-54;		
Matches 134; Conservative	9;	Mismatches 16;	Indels 0;	Gaps 0;

Oy 1 GVENEEETT SVI PAARLFKAF ILIDGDNLEPKPA POAASVENVSGNGPGTIKKISFE 60  
|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||  
Db 1 GVDIEGETTSVI PAARLKFAL ILDGDNLIPKAPAOASCVENVEGNGPGTIKKITFE 60

DQ 61 GLPEFYKVRVDEVDHTNFKINYSVEGPGIDLTLEKINEIKIATPDGGSILKSNNKY 120  
+ ++++++:+++++ :+++++ :+++++ ++++++  
Dd 61 GSPKKYKERVDEVDRVNFKISYSVIEGGAVDTLEKICNEIKIIVAPGGGSILKSNNKY 120

```
QY      121 HTGSDHEVKAEGYKASKEMETLLEAVESYLHAHDAYN 159
        |||::|||::|||::|||::|||::|||::|||::|||::|||
Db       121 HGTGNHMKAEQLKASKEKAALPFAVESYLLAHSDAYN 159
```

RESULT 14

major allergen Cor a I/6 - European hazel  
C:Species: Corylus avellana (European hazel)  
C:Date: 07-Apr-1994 #sequence\_revision 07-Apr-1994 #text\_change 20-Aug-1999  
C:Accession: S30054  
R:Breiteneder, H.; Ferreira, F.; Hoffmann-Sommergruber, K.; Ebner, C.; Breiteneder, M.;  
Eur. J. Biochem. 212, 355-362, 1993  
A:Title: Four recombinant isoforms of Cor a I, the major allergen of hazel pollen, show  
A:Reference number: S30053; MUID:93185652  
A:Accession: S30054  
A:Molecule type: mRNA  
A:Residues: 1-160 <BR>  
A:Cross-references: EMBL:X71000; NID:g22689; PIDN:CAA50328.1; PID:g22690  
C:Genetics:  
A:Gene: Cor a I/6  
C:Superfamily: pathogenesis-related protein  
:Keywords: pollen

Query Match	75.38;	Score 616;	DB 2;	Length 160;
Best Local Similarity	72.38;	Pred. No. 2.2e-47;		
Matches 115;	Conservative 22;	Mismatches 22;	Indels 0;	Gaps 0;

QY 1 GVFNYEETTSVIPARLFKAFILDDNLEFPKVAPOAISSVENISGNGGPGTIKKISFPE 60

Db 2 GVFNENVEPTSPYIAARFKNSYVLDDGKLIPKVAPOAITSVENEGNPGPTININTFGE 61

Qy 61 GLPEKYAKDRVDEVDHNFKNYSYIBSGPIGDLLEKISNEIKIYAAPDDGSIILKISKY 120

Db 62 GSRKYKYEERDEVDNHFKNYSYIVIEGDVYLGDLLEKYSCLIKIYAAPGGGSIILKISSKF 121

Qy 121 HTKGDHEYKAEQVASKRMEGETLLRAVESYLLAASDAVN 159

Db 122 HAKGDHEINAEDEKAKMAEKLLRAVETIYLLAISAEIN 160

**RESULT 15**

major allergen Cor a I/11 (European hazel)  
C:Species: Corylus avellana (European hazel)  
C:Date: 07-Apr-1994 #sequence\_revision 07-Apr-1994 #text\_change 20-Aug-1999  
C:Accession: S30055; S35507  
R:Breiteneder, H.; Ferreira, F.; Hoffmann-Sommergruber, K.; Ebner, C.; Breitenbach, M.  
Eur. J. Biochem. 212, 335-362, 1993  
A:Title: Four recombinant isoforms of Cor a I, the major allergen of hazel pollen, sh  
A:Reference number: S30053; MUID:93185652  
A:Accession: S30055  
A:Molecule type: mRNA  
A:Residues: 1-160 <BRBL>  
A:Cross-references: EMBL:X70997  
R:Breiteneder, H.  
submitted to the EMBL Data Library, February 1993  
A:Reference number: S35507  
A:Accession: S35507  
A:Molecule type: mRNA  
A:Residues: 1-133, 'I', 135-160 <BRE2>  
A:Cross-references: EMBL:X70997; NID:g22683; PIDN:CAAS0325.1; PID:g22684  
C:Genetics:  
A:Gene: Cor a I/1  
C:Superfamily: pathogenesis-related protein  
C:Keywords: pollen

Query Match	75.3%;	Score 616;	DB 2;	Length 160;
Best Local Similarity	72.3%;	Pred. No. 28-47;		
Matches 115;	Conservative 22;	Mismatches 22;	Indels 0;	Gaps 0

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QY      1 GVFNNETETETSVIPARLLEKAFILDDGNDLPKVPARQAISSVENISGNGPGTIKKISFEE 60
        ||||| ||||| ||||| ::||| ||||| ||||| :||| ||||| ||||| :|||
Db      2 GVFNVEAETTSVIPARLLEKFSYLLDGDRLIPKVPARQAISSVENISGNGPGTIKNITFEE 61

```

QY 61 GLPFFKYVKDRYDEVVHTNFKKNYSVIEGGPIGDTLEKINEIKIYAATPDGGSILKTSNKY 120

DB 62 GSRKKYVKERYDEVVNTNFTYSYTVIEGDVLGDKLEKVCHELKIYAAPGGGSILKTSKSF 121

```
QY      121 HTGDHEVKA3QYKASKEMETLLRAVESYLLAHSDAYN 159
      | | | | | : | : | : | | | | | : | |
Db      122 HAAGDHEINAEEMGAKEMAKEKLEA VETVYLLAHSAEYN 160
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Search completed: December 11, 2000, 10:41:59  
Job time: 116 sec



GenCore version 4.5  
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 11, 2000, 09:41:43 ; Search time 171.63 seconds  
(without alignments)  
15.528 Million cell updates/sec

Title: US-09-270-910-37

Perfect score: 819

Sequence: 1 GFNNYETETTSVPAARLKK.....GETLLRAVESYLLAHSDAVN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	815	99.5	160	1	US-07-847-010-23
2	683	83.4	160	1	US-07-847-010-3
3	621	75.8	160	1	US-07-847-010-14
4	621	75.8	160	1	US-07-847-010-17
5	615	73.1	160	1	US-07-847-010-11
6	601	73.4	160	1	US-07-847-010-20
7	377	46.0	158	5	5312912-2
8	277.5	33.9	154	1	US-08-363-010-1
9	275.5	33.6	154	2	US-08-911-434A-4
10	236	28.8	158	3	US-08-199-219-6
11	78	9.5	1442	2	US-08-316-650-12
12	78	9.5	1442	4	PCR-US95-02251-12
13	77	9.4	669	2	US-08-357-533A-8
14	77	9.4	669	3	US-08-459-009-8
15	77	9.4	669	2	US-08-459-951-8
16	75.5	9.2	3135	1	US-08-323-170B-2
17	72	8.8	1577	2	US-08-793-824-2
18	71.5	8.7	341	2	US-08-538-711A-8
19	71.5	8.7	353	3	US-08-538-711A-7
20	70.5	8.6	522	5	RE34606-6
21	70	8.5	1008	2	US-08-680-326-30
22	69	8.4	159	3	US-09-142-514-4
23	68.5	8.4	836	1	US-08-426-627-6
24	68.5	8.4	837	1	US-08-426-627-23
25	68	8.3	436	3	US-08-669-378-2
26	68	8.3	436	3	US-08-669-378-4
27	68	8.3	436	3	US-08-669-378-6
28	68	8.3	436	3	US-08-669-378-10

29	68	8.3	436	3	US-08-669-378-12	Sequence 12, Appl
30	68	8.3	997	2	US-08-387-942C-4	Sequence 4, Appl
31	67.5	8.2	769	3	US-09-320-878-12	Sequence 12, Appl
32	67	8.2	780	1	US-08-485-621-2	Sequence 2, Appl
33	67	8.2	780	2	US-08-973-831-2	Sequence 2, Appl
34	67	8.2	780	4	PCR-US96-09530A-2	Sequence 2, Appl
35	66.5	8.1	866	1	US-08-386-727-8	Sequence 8, Appl
36	66.5	8.1	866	2	US-08-600-432A-8	Sequence 8, Appl
37	66.5	8.1	906	1	US-08-486-270-2	Sequence 8, Appl
38	66.5	8.1	906	3	US-08-367-264-2	Sequence 2, Appl
39	66	8.1	310	1	US-08-129-456A-37	Sequence 37, Appl
40	66	8.1	420	3	US-09-329-418-8	Sequence 8, Appl
41	66	8.1	518	3	US-09-329-418-3	Sequence 3, Appl
42	66	8.1	518	3	US-09-329-418-4	Sequence 4, Appl
43	66	8.1	518	3	US-09-329-418-9	Sequence 9, Appl
44	66	8.1	1183	2	US-08-447-031A-2	Sequence 2, Appl
45	65.5	8.0	416	3	US-08-910-505-2	Sequence 2, Appl

## ALIGNMENTS

RESULT 1  
US-07-847-010-23  
Sequence 23, Application US/07847010  
Patent No. 5693495  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertstorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann, J. Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheidner, Otto  
APPLICANT: Eder, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 23:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 160 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: birch (Betula sp.)

IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGON AB, ENGELHOLM, SWEDEN  
US-07-847-010-23

Query Match 99.5%; Score 815; DB 1; Length 160;  
Best Local Similarity 99.4%; Pred. No. 1.8e-83;  
Matches 158; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GVFNETTTSVTPARLFKAFILDDGNLFPKVAPOAISSVENIEGNGPGTIKISFPE 60  
|||||  
DB 2 GVFNETTTSVTPARLFKAFILDDGNLFPKVAPOAISSVENIEGNGPGTIKISFPE 61  
QY 61 GLPFYVDRDEVDHNTFKNYSVIEGGPIGDTLEKISNEIKIYATPPDGSILKISNKY 120  
|||||  
DB 62 GSPFYVERDEVDHNTFKNYSVIEGGPIGDTLEKISNEIKIYATPPDGSILKISNKY 121  
QY 121 HTKGDHEVKAQVASKEMGETLLRAVESYLLAHSDAVN 159  
|||||  
DB 122 HTKGDHEVKAQVASKEMGETLLRAVESYLLAHSDAVN 160

RESULT 2  
US-07-847-010-3  
Sequence 3, Application US/07847010  
Patent No. 5693495  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentln Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 160 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: Alder (Alnus sp.)

US-07-847-010-3

Query Match 83.4%; Score 683; DB 1; Length 160;  
Best Local Similarity 81.1%; Pred. No. 9.5e-69;  
Matches 129; Conservative 12; Mismatches 18; Indels 0; Gaps 0;

QY 1 GVFNETTTSVTPARLFKAFILDDGNLFPKVAPOAISSVENIEGNGPGTIKISFPE 60  
|||||  
DB 2 GVFNETTTSVTPARLFKAFILDDGNLFPKVAPOAISSVENIEGNGPGTIKISFPE 61  
QY 61 GLPFYVDRDEVDHNTFKNYSVIEGGPIGDTLEKISNEIKIYATPPDGSILKISNKY 120  
|||||  
DB 62 GSPFYVERDEVDHNTFKNYSVIEGGPIGDTLEKISNEIKIYATPPDGSILKISNKY 121  
QY 121 HTKGDHEVKAQVASKEMGETLLRAVESYLLAHSDAVN 159  
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DB 122 HTKGDHEVKAQVASKEMGETLLRAVESYLLAHSDAVN 160

RESULT 3  
US-07-847-010-14  
Sequence 14, Application US/07847010  
Patent No. 5693495  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentln Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 14:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 160 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: hazel (Corylus sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGON AB, ENGELHOLM, SWEDEN





LIBRARY: POLLEN FROM ALLERCON AB, ENGELHOLM, SWEDEN

COMPUTER READABLE FORM:

COMPUTER READABLE FORM:

	Query Match	28.88;	Score 236;	DB 3;	Length 158;	
	Best Local Similarity	35.98;	Pred. No. 6.9e-19;			
	Matches	56;	Conservative	30;	Mismatches	66;
					Indels	4;
					Gaps	3;
OY	4 NYEETTSVIAARLFKFAFLIDGDLNLFKVAPOAISSTVENIEGNCGPGTIKISFPE-GL	62				
	:: :					

DB 5 SMSHEVAVNAAGRMFKAMLDWNIKPIVDPFIAGSVYSGDVGITREIKINPAI 64  
QY 63 PKRYKDRVDEVDHTNFKNYSVIEGGPIGTLEKISNEIKIYATPPGSGILKISNXYHT 122  
DB 65 PFSYKERLDFVHDHFEVKQTLVEGGGLKMFECATTHKFPSSNGGLVKTASY-- 122  
QY 123 KGDHEVKAQVASKEMGETLLRAVESYLLAHSDAY 158  
DB 123 KILPGVADSAKA-KECITNHHMATEARYLLANFTAY 157

RESULT 11  
US-08-316-650-12  
; Sequence 12, Application US/08316650  
; Patent No. 5942496  
; GENERAL INFORMATION:  
; APPLICANT: Bonadio, Jeffrey  
; APPLICANT: Roesler, Blake J.  
; APPLICANT: Goldstein, Steven A.  
; APPLICANT: Liu, Wushan  
; TITLE OF INVENTION: METHODS AND COMPOSITIONS  
; TITLE OF INVENTION: FOR STIMULATING BONE CELLS  
; NUMBER OF SEQUENCES: 15  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Arnold, White & Durkee  
; STREET: P. O. Box 4433  
; CITY: Houston  
; STATE: Texas  
; COUNTRY: USA  
; ZIP: 77210  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/316,650  
; FILING DATE: 30-SEP-1994  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/199,780  
; FILING DATE: 30-SEP-1994  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Parker, David L.  
; REGISTRATION NUMBER: 32,165  
; REFERENCE/DOCKET NUMBER: UMIC:008  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (512) 418-3000  
; TELEFAX: (713) 789-2679  
; TELETYPE: 79-0924  
; INFORMATION FOR SEQ ID NO: 12:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 1442 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; US-08-316-650-12

Query Match 9.5%; Score 78; DB 2; Length 1442;  
Best Local Similarity 24.1%; Pred. No. 7.8;  
Matches 38; Conservative 18; Mismatches 52; Indels 50; Gaps 7;

QY 25 DGDNLFP-----KVAPQAISSVENIEGNGPGTIIKISFPEGL----- 62  
DB 1130 DGSNGIPGPIGPPRGSRGSETGVPGPSPPGPGPGI--DMSAFAGIGOREKG 1187  
QY 63 --PKRYKDRVDEVDHTNFKNYSVIEGGPIGTLEKISNEIKIYATPPDG-----S 112  
DB 1188 PDPMQIY--RADADSTLRQHDVEY-----DATLKSINQIJSINSPPGSKRNPAITCQ 1239  
QY 113 ILKISNRYHTKGDHEVKAQ-----VKASKEMGET 142

DB 1240 DLKICHPKMSGDYWDIPNQGCTLDAMKVFCCNNMETGET 1277

RESULT 12  
PCT-US95-02251-12  
; Sequence 12, Application PC/TUS9502251  
; GENERAL INFORMATION:  
; APPLICANT:  
; TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR STIMULATING BONE  
; NUMBER OF SEQUENCES: 18  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Arnold, White & Durkee  
; STREET: P. O. Box 4433  
; CITY: Houston  
; STATE: Texas  
; COUNTRY: United States of America  
; ZIP: 77210  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS/ASCII  
; SOFTWARE: Patent Release #1.0, Version  
; SOFTWARE: #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: PCT/US95/02251  
; FILING DATE: CONCURRENTLY HERewith  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/316,650  
; FILING DATE: 30-SEP-1994  
; CLASSIFICATION:  
; APPLICATION NUMBER: US 08/199,780  
; FILING DATE: 18-FEB-1994  
; CLASSIFICATION:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Parker, David L.  
; REGISTRATION NUMBER: 32,165  
; REFERENCE/DOCKET NUMBER: UMIC009P--  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (512) 418-3000  
; TELEFAX: (713) 789-2679  
; TELETYPE: 79-0924  
; INFORMATION FOR SEQ ID NO: 12:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 1442 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: peptide  
; PCT-US95-02251-12

Query Match 9.5%; Score 78; DB 4; Length 1442;  
Best Local Similarity 24.1%; Pred. No. 7.8;  
Matches 38; Conservative 18; Mismatches 52; Indels 50; Gaps 7;

QY 25 DGDNLFP-----KVAPQAISSVENIEGNGPGTIIKISFPEGL----- 62  
DB 1130 DGSNGIPGPIGPPRGSRGSETGVPGPSPPGPGPGI--DMSAFAGIGOREKG 1187  
QY 63 --PKRYKDRVDEVDHTNFKNYSVIEGGPIGTLEKISNEIKIYATPPDG-----S 112  
DB 1188 PDPMQIY--RADADSTLRQHDVEY-----DATLKSINQIJSINSPPGSKRNPAITCQ 1239  
QY 113 ILKISNRYHTKGDHEVKAQ-----VKASKEMGET 142  
DB 1240 DLKICHPKMSGDYWDIPNQGCTLDAMKVFCCNNMETGET 1277

RESULT 13  
US-08-357-533A-8



Mon Dec 11 10:50:29 2000

us-09-270-910-37.open.raii

Page 8

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1 ADDRESS: INC
2 STREET: 45 SOUTH STREET
3 CITY: HOPKINTON
4 STATE: MA
5 COUNTRY: USA
6 ZIP: 01748
7
8 COMPUTER READABLE FORM:
9 MEDIUM TYPE: Floppy disk
10 COMPUTER: IBM PC compatible
11 OPERATING SYSTEM: PC-DOS/MS-DOS
12 SOFTWARE: Patent In Release #1.0, Version #1.25
13
14 CURRENT APPLICATION DATA:
15 APPLICATION NUMBER: US/08/459,951
16
17 FILING DATE:
18 CLASSIFICATION: 435
19 PRIOR APPLICATION DATA:
20 APPLICATION NUMBER: US 08/357,533
21 FILING DATE: 16-DEC-1994
22
23 ATTORNEY/AGENT INFORMATION:
24 NAME: KELLY, ROBIN D
25 REGISTRATION NUMBER: 34,637
26 REFERENCE/DOCKET NUMBER: CRP-073FW
27 TELECOMMUNICATION INFORMATION:
28 TELEPHONE: (508)-435-9001
29 TELEFAX: (508)-435-0992
30
31 INFORMATION FOR SEQ-ID NO: 8:
32 SEQUENCE CHARACTERISTICS:
33 LENGTH: 669 amino acids
34 TYPE: amino acid
35 STRANDEDNESS: single
36 TOPOLOGY: linear
37
38 MOLECULE TYPE: protein
39 FEATURE:
40 NAME/KEY: Protein
41 LOCATION: 1..669
42 OTHER INFORMATION: /note= "C ELGANS RECEPTOR KINASE
43
44 US-08-459-951-8

```

Query Match	9.48	Score 77	DB 3	Length 669
Best Local Similarity	24.58	Pred. No. 3.2		
Matches	39	Conservative	24	Mismatches 54; Indels 42; Gaps 9

  

QY	8	ETTSTVPAARLEKFAFLDGD	--NLEPKAP--QAISVYENIEGNGPGPTIKKISPEGL	62
		: :	:     :    :	:     :
DB	216	ETENNVPMTM-----	GDGAGSSVEPAVPIEQGSTMTSAGN-----	SPPEI 259
QY	63	PKKYKDRVDEVDHTNEKYNYSIEGPIG-DLLEK--ISNEIKIYAPDGGSIKISK	119	
		:    :    :	:     :    :	:
DB	260	MENNKKMDLVDVEETS-----	GSQGMPITLHLITGCOIRLTGRVSGSRGNVS--	308
QY	120	YHTKGDHEKAEQVASKREMGETLL-----RAVESYLLAH	154	
		:    :	:    :    :	:
DB	309	---RQDYRGEAAVAVKFNALDEPAHKEETETRLRH	344	

Search completed: December 11, 2000, 09:50:02  
Job time: 499 sec

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: December 11, 2000, 09:47:12 ; Search time 277.19 seconds  
(without alignments)  
18.326 Million cell updates/sec

Title: US-09-270-910-37

Perfect score: 819  
Sequence: 1 GFVNYETETTSVIPARLRF.....GETLLRAVESYLLAHSDAYN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues  
Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : SwissProt\_39.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match length	ID	Description
1	815	99.5	BV1A_BETVE	P15494 betula verr
2	795	97.1	BV1J_BETVE	P43183 betula verr
3	790	96.5	BV1E_BETVE	P43178 betula verr
4	789	96.3	BV1F_BETVE	P43179 betula verr
5	787	96.1	BV1D_BETVE	P43177 betula verr
6	786	96.0	BV1G_BETVE	P43180 betula verr
7	780	95.2	BV1L_BETVE	P43185 betula verr
8	740	90.4	BV1M_BETVE	P43186 betula verr
9	734	89.6	BV1B_BETVE	P45331 betula verr
10	730	89.1	BV1K_BETVE	P43184 betula verr
11	722	88.2	BV1C_BETVE	P43176 betula verr
12	683	83.4	MPAG_ALINGL	P38848 alnus gluti
13	640	78.1	MPA2_CARBE	P38950 carpinus be
14	619	75.6	MPA1_CARBE	P38949 carpinus be
15	615	75.1	MPAA_CORAV	Q08407 corylus ave
16	505	61.7	PRU1_PRAVAV	O24248 prunus aviu
17	463.5	56.6	MA11_MALDO	P43311 malus domes
18	420.5	51.3	PRL_MERSA	O43560 medicago sa
19	386	47.1	DRR3_PPA	P14710 pismus sativ
20	382	46.6	AB18_PPA	Q06630 pismus sativ
21	381	46.5	SAM2_SOYBN	P26987 glycine max
22	377	46.0	DRR4_PPA	P27047 pismus sativ
23	374.5	45.7	DRR1_PPA	P13339 pismus sativ
24	370	45.2	PRL_PRAVU	P25885 phaseolus v
25	362.5	44.3	PR2_PRAVU	P25886 phaseolus v
26	349	42.6	L18B_LUPLU	P52179 lupinus lut
27	342.5	41.8	PRSI_SOLTU	P17641 solanum tub
28	342.5	41.8	PRSI_SOLTU	P17642 solanum tub
29	340	41.5	L18A_LUPLU	P52178 lupinus lut
30	332.5	40.6	AB17_PPA	Q06631 pismus sativ
31	330.5	40.4	PR2_PETCR	P27538 petroselinu
32	327	39.9	RNS1_PANGI	P80889 panax gins
33	316	38.6	PRL1_PETCR	P19417 petroselinu

34	312.5	38.2	153	1	RNS2_PANGI	P80890 panax gins
35	312	38.1	155	1	PRL1_PETCR	P19418 petroselinu
36	310.5	37.9	154	1	MPAG_APICR	P49372 apium grave
37	301	36.8	157	1	RAP_TAROF	O49065 taraxacum o
38	278.5	34.0	154	1	DAU1_DAUCA	O04298 daucus car
39	236	28.8	158	1	PRI_ASPOF	Q05736 asparagus u
40	88	10.7	615	1	DNAR_THETH	Q56235 thermus aqu
41	80.5	9.8	956	1	CB31_YEAST	P32504 saccharomyc
42	79	9.6	387	1	YRS8_CAEEL	O10004 caenorhabdi
43	79	9.6	726	1	NU84_YEAST	P52891 saccharomyc
44	78	9.5	1459	1	CA12_MOUSE	P28481 mus musculu
45	77.5	9.5	889	1	NOBY_BRAJA	P15939 bradyrhizob

## ALIGNMENTS

RESULT 1  
ID BV1A\_BETVE STANDARD: PRT: 159 AA.  
AC P15494: Q96369:  
DT 01-APR-1990 (Rel. 14, Created)  
DT 01-APR-1990 (Rel. 14, Last sequence update)  
DT 15-JUL-1998 (Rel. 36, Last annotation update)  
DE MAJOR POLLEN ALLERGEN BET V 1-A (BET V 1-A).  
GN BETVIA OR BETVI.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;  
OC Fagales; Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A., AND SEQUENCE OF 1-34.  
RC TISSUE=POLLEN:  
RX MEDLINE: 90005335.  
RA Breiteneder H., Pottenburger K., Bito A., Valenta R., Kraft D.,  
RA Rumpold H., Scheiner O., Breitenbach M.;  
RT "The gene coding for the major birch pollen allergen Betvi, is highly  
RT homologous to a pea disease resistance response gene.";  
RL EMBO J. 8:1935-1938(1989).  
RN [2]  
RP SEQUENCE FROM N.A.  
RC TISSUE=POLLEN:  
RX MEDLINE: 95153322.  
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,  
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,  
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;  
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by  
RT liquid chromatography, mass spectrometry, and cDNA cloning.";  
RL J. Biol. Chem. 270:2607-2613(1995).  
RN [4]  
RP PARTIAL SEQUENCE.  
RX MEDLINE: 91317572.  
RA Elsayed S., Vuk H.;  
RT "Purification and N-terminal amino acid sequence of two birch pollen  
RT isoallergens (Bet v I and Bet v II).";  
RL Int. Arch. Allergy Appl. Immunol. 93:378-384(1990).  
RN [5]  
RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS), AND STRUCTURE BY NMR.  
RX MEDLINE: 97102431.  
RA Gajdhe M., Osmark P., Poulsen F.M., Ipsen H., Larsen J.N.,  
RA van Neeuwen R.J.J., Schou C., Loewenstein H., Spangfort M.D.;  
RT "X-ray and NMR structure of Bet v 1, the origin of birch pollen  
RT allergy.";  
RL Nat. Struct. Biol. 3:1040-1045(1996).  
CC -I- SUBCELLULAR LOCATION: CYTOPLASMIC.  
CC -I- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH  
CC AMERICA AND USSR.  
CC -I- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED

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CC -----
DR EMBL: X15877; CA33887.1; -
DR EMBL: Z80098; CAB02153.1; -
DR EMBL: Z80099; CAB02154.1; -
DR EMBL: Z80104; CAB02159.1; -
DR PIR: S05376; S05376.
DR PDB: 1BTY; 12-AUG-97.
DR PDB: 1BVI; 17-SEP-97.
DR INTERPRO: IPR000916; -
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS.BETVI; 1.
DR Pathogenesis-related protein; Allergen; Multigene family;
KW 3D-structure.
FT INIT_MET 0
FT VARIANT 62 62 F -> L.
SQ SEQUENCE 159 AA; 17440 MW; 96E181194BBA83E6 CRC64;

Query Match 99.5%; Score 815; DB 1; Length 159;
Best Local Similarity 99.4%; Pred. No. 1.7e-63;
Matches 158; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISVENIEGNGPGTIKKISFPE 60
DB 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISVENIEGNGPGTIKKISFPE 60
QY 61 GLPFKYVDRVDEVDHTNFKYNSYIEGGPIGDTLEKISNEIKIVATPDGGSILKSNKY 120
DB 61 GLPFKYVDRVDEVDHTNFKYNSYIEGGPIGDTLEKISNEIKIVATPDGGSILKSNKY 120
QY 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159

RESULT 2
BY1L BETVE STANDARD: PRT; 159 AA.
ID BY1L BETVE
AC P43183;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-J (BET V I-J).
GN BETVIJ.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Sweboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Schenker O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----
DR EMBL: X77271; CA54487.1; -
DR HSSP: P15494; 1BTY.
DR INTERPRO: IPR000916; -
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS.BETVI; 1.
DR Pathogenesis-related protein; Allergen; Multigene family.
FT INIT_MET 0
FT VARIANT 159 AA; 17408 MW; D2AC26E97710ABD CRC64;
SQ SEQUENCE 159 AA; 17408 MW; D2AC26E97710ABD CRC64;

Query Match 97.1%; Score 795; DB 1; Length 159;
Best Local Similarity 95.6%; Pred. No. 8.8e-62;
Matches 152; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISVENIEGNGPGTIKKISFPE 60
DB 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISVENIEGNGPGTIKKISFPE 60
QY 61 GLPFKYVDRVDEVDHTNFKYNSYIEGGPIGDTLEKISNEIKIVATPDGGSILKSNKY 120
DB 61 GLPFKYVDRVDEVDHTNFKYNSYIEGGPIGDTLEKISNEIKIVATPDGGSILKSNKY 120
QY 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEQVAKSKEMGETLLRAVESYLLAHSDAYN 159

RESULT 3
BY1L BETVE STANDARD: PRT; 159 AA.
ID BY1L BETVE
AC P43178;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-E (BET V I-E).
GN BETVIE.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Sweboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Schenker O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
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CC -----
DR EMBL: X77267; CA54483.1; -
DR HSSP: P15494; 1BTV.
DR INTERPRO: IPR000916; -
DR PFIAM: PF00407; Bet_v-I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17316 MW; 3E752543EED1A08E CRC64;

Query Match
Best Local Similarity 96.5%; Score 790; DB 1; Length 159;
Matches 151; Conservative 6; Mismatches 2; Indels 0; Gaps 0;

QY 1 GVFNETETTSYIPARLKAFLDGDNLFPKYAPQAISSENIENGSGPGTIKISFPE 60
DB 1 GVFNETETTSYIPARLKAFLDGDNLFPKYAPQAISSENIENGSGPGTIKISFPE 60
QY 61 GPFKVKRVDVDEHTNKNYSYIEGGPIGDTLEKISNEIKIYATPPGSGTIKINNY 120
DB 61 GPFKVKRVDVDEHTNKNYSYIEGGPIGDTLEKISNEIKIYATPPGSGTIKINNY 120

QY 121 HTKGDEHVAEQKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVAEQKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 4
BYID BETVE STANDARD; PRT; 159 AA.
AC P43177;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-F/I (BET V 1-F/I).
GN BETVIJ AND BETVIH.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
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CC -----
DR EMBL: X77268; CA54484.1; -
DR EMBL: X77274; CA54490.1; -
DR HSSP: P15494; 1BTV.
DR INTERPRO: IPR000916; -
DR PFIAM: PF00407; Bet_v-I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
SQ SEQUENCE 159 AA; 17418 MW; 801F3F8F56106FD CRC64;

Query Match
Best Local Similarity 96.1%; Score 787; DB 1; Length 159;
Matches 151; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

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KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17421 MW; 6063F9C82A71165C CRC64;

Query Match
Best Local Similarity 96.3%; Score 789; DB 1; Length 159;
Matches 151; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

QY 1 GVFNETETTSYIPARLKAFLDGDNLFPKYAPQAISSENIENGSGPGTIKISFPE 60
DB 1 GVFNETETTSYIPARLKAFLDGDNLFPKYAPQAISSENIENGSGPGTIKISFPE 60
QY 61 GPFKVKRVDVDEHTNKNYSYIEGGPIGDTLEKISNEIKIYATPPGSGTIKINNY 120
DB 61 GPFKVKRVDVDEHTNKNYSYIEGGPIGDTLEKISNEIKIYATPPGSGTIKINNY 120

QY 121 HTKGDEHVAEQKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVAEQKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 5
BYID BETVE STANDARD; PRT; 159 AA.
AC P43177;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-D/H (BET V 1-D/H).
GN BETVIJ AND BETVIH.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
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DR EMBL: X77266; CA54482.1; -
DR EMBL: X77270; CA54486.1; -
DR HSSP: P15494; 1BTV.
DR INTERPRO: IPR000916; -
DR PFIAM: PF00407; Bet_v-I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17418 MW; 801F3F8F56106FD CRC64;

Query Match
Best Local Similarity 96.1%; Score 787; DB 1; Length 159;
Matches 151; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

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Matches 151: Conservative 4; Mismatches 4; Indels 0; Gaps 0;

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QY 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKISFPE 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKINPE 60

QY 61 GLPFKYKVDKRDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 GEPFKYKVDKRDVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 120

QY 121 HTKGDHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 121 HTKGNHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
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## RESULT 6

```
BVL1_BETVE
ID BVL1_BETVE STANDARD: PRT: 159 AA.
AC P43180;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-G (BET V I-G).
GN BETV1G.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A. AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pitteneuer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
```

```
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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```

```
CC -----
CC EMBL: X77269; CA54485.1; -.
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -.
CC PFM: PF00407; Bet_v-I.1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETV1.1.
CC Pathogenesis-related protein; Allergen; Multigene family.
CC INIT MET 0
CC SEQUENCE 159 AA; 17420 MW; BBAE6DCCE241DBB CRC64;
```

Query Match 96.0%; Score 786; DB 1; Length 159;  
Best Local Similarity 94.3%; Pred. No. 5.2e-61;  
Matches 150; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

```
QY 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKISFPE 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKINPE 60

QY 61 GLPFKYKVDKRDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 GEPFKYKVDKRDVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 120
```

```
Db 61 GEPFKYKVDKRDVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 120
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 121 HTKGDHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 121 HTKGNHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
```

## RESULT 7

```
BVL1_BETVE
ID BVL1_BETVE STANDARD: PRT: 159 AA.
AC P43185;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-L (BET V I-L).
GN BETV1L.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN.
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pitteneuer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
```

```
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
CC
CC -----
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```

```
CC -----
CC EMBL: X77273; CA54489.1; -.
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -.
CC PFM: PF00407; Bet_v-I.1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETV1.1.
CC Pathogenesis-related protein; Allergen; Multigene family.
CC INIT MET 0
CC SEQUENCE 159 AA; 17408 MW; DB85F4ACC647BE0D CRC64;
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Query Match 95.2%; Score 780; DB 1; Length 159;  
Best Local Similarity 93.7%; Pred. No. 1.7e-60;  
Matches 149; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

```
QY 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKISFPE 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 GVENYETETTSVIPAARLFKAFILDDGNLFPKVAPOAISVENINGNGPGTIKKINPE 60

QY 61 GLPFKYKVDKRDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 GEPFKYKVDKRDVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 120

QY 121 HTKGDHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 121 HTKGNHEVKAQOVKASKEMGETLLRAVESYLLASHDAYN 159
```

## RESULT 8

```

BV1M_BETVE
ID BV1M_BETVE STANDARD: PRT: 159 AA.
AC P43186;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-M/N (BET V 1-M/N).
GN BETV1M AND BETV1N.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Snoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Schenler O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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-----
CC EMBL: X81972; CAA57497.1; -
CC EMBL: X82028; CAA57550.1; -
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -
CC PRAM: PF00407; Bet_v_1; 1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
CC Pathogenesis-related protein; Allergen; Multigene family.
CC INIT MET 0
CC SEQUENCE 159 AA; 17391 MW; ABA014F884985E2 CRC64;

Query Match 90.4%; Score 740; DB 1; Length 159;
Best Local Similarity 89.3%; Pred. No. 4.7e-57;
Matches 142; Conservative 8; Mismatches 9; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFKFAFLIDGNLPPKAPQAISSEVENIEGNGGPGTIKKISFPE 60
DB 1 GVENYETETTSVIPARLFKFAFLIDGNLIPKAPQAISSEVENIEGNGGPGTIKKITFE 60
QY 61 GLPFKYKDRVDEVDHNFKNYSVIEGPIGDTLEKISNEIKIVAPPDGSGILKISNKY 120
DB 61 GSPFKYKERVDEVDHANFNKYSVIEGALGDTLEKICNEIKIVAPPDGSGILKISNKY 120
QY 121 HTKGDEHKAQVYKASKEGTELLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHKAQVYKASKEGTELLRAVESYLLAHSDAYN 159

RESULT 9
BV1M_BETVE STANDARD: PRT: 159 AA.
AC P45431;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-B (BET V 1-B).

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```

GN BETV1B.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Snoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Schenler O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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-----
CC EMBL: X77200; CAA54421.1; -
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -
CC PRAM: PF00407; Bet_v_1; 1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
CC Pathogenesis-related protein; Allergen; Multigene family.
CC INIT MET 0
CC SEQUENCE 159 AA; 17406 MW; ECC8D391E0C96267 CRC64;

Query Match 89.6%; Score 734; DB 1; Length 159;
Best Local Similarity 88.7%; Pred. No. 1.6e-56;
Matches 141; Conservative 8; Mismatches 10; Indels 0; Gaps 0;

QY 1 GVENYETETTSVIPARLFKFAFLIDGNLPPKAPQAISSEVENIEGNGGPGTIKKISFPE 60
DB 1 GVENYETETTSVIPARLFKFAFLIDGNLIPKAPQAISSEVENIEGNGGPGTIKKITFE 60
QY 61 GLPFKYKDRVDEVDHNFKNYSVIEGPIGDTLEKISNEIKIVAPPDGSGILKISNKY 120
DB 61 GSPFKYKERVDEVDHANFNKYSVIEGALGDTLEKICNEIKIVAPPDGSGILKISNKY 120
QY 121 HTKGDEHKAQVYKASKEGTELLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHKAQVYKASKEGTELLRAVESYLLAHSDAYN 159

RESULT 10
BV1K_BETVE STANDARD: PRT: 159 AA.
AC P43184;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-K (BET V 1-K).
GN BETV1K.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;

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RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferrelira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vienne O., Heberle-Bors E., Ahorn H., Breitenbach M.,
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning."
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----
DR EMBL: X77272; CA54488.1; -.
DR HSSP: P13494; IRTV.
DR INTERPRO: IPR000916; -.
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17392 MW; AAF9E6F197C96517 CRC64;

Query Match 89.1%; Score 730; DB 1; Length 159;
Best Local Similarity 88.1%; Pred. No. 3,4e-56;
Matches 140; Conservative 9; Mismatches 10; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLKAFILDGDNLFPPYAPQAISVENINGNGPGTIKISFPE 60
DB 1 GFVNSEETTSYIPARLKAFILDEDTLIPKAPQAISVENIEGNGGPGTIKITEPE 60
QY 61 GLPFKYVDRVDEVDHTNFKYNSVTEGGPIDTLEKISNEIKYATPDGGSILKISNKY 120
DB 61 GSPFKYKRVDEVDHANKYSYSMEGALDPTLEKINEIKYATPDGGSILKISNKY 120
QY 121 HTKGDHVKAEQYKASKEGELLRAVESYLLAHSDAYN 159
DB 121 HTKGDHMKAEHMKAIKEKGEALLRAVESYLLAHSDAYN 159

RESULT 11
BVLIC_BETVE
ID BVLIC_BETVE STANDARD; PRT; 159 AA.
AC PA3176;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-C (BET V 1-C).
GN BETV1C.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferrelira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vienne O., Heberle-Bors E., Ahorn H., Breitenbach M.,
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning."
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.

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CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----
DR EMBL: X77265; CA54481.1; -.
DR HSSP: P15494; IRTV.
DR INTERPRO: IPR000916; -.
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17383 MW; AAF9A95A7C96517 CRC64;

Query Match 88.2%; Score 722; DB 1; Length 159;
Best Local Similarity 87.4%; Pred. No. 1.7e-55;
Matches 139; Conservative 9; Mismatches 11; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLKAFILDGDNLFPPYAPQAISVENINGNGPGTIKISFPE 60
DB 1 GFVNSEETTSYIPARLKAFILDEDTLIPKAPQAISVENIEGNGGPGTIKITEPE 60
QY 61 GLPFKYVDRVDEVDHTNFKYNSVTEGGPIDTLEKISNEIKYATPDGGSILKISNKY 120
DB 61 GSPFKYKRVDEVDHANKYSYSMEGALDPTLEKINEIKYATPDGGSILKISNKY 120
QY 121 HTKGDHVKAEQYKASKEGELLRAVESYLLAHSDAYN 159
DB 121 HTKGDHMKAEHMKAIKEKGEALLRAVESYLLAHSDAYN 159

RESULT 12
MPGK_ALINGL
ID MPGK_ALINGL STANDARD; PRT; 159 AA.
AC P38948;
DT 01-FEB-1995 (Rel. 31, Created)
DT 01-FEB-1995 (Rel. 31, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN ALN G 1 (ALN G 1).
OS Alnus glutinosa (Alder).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Alnus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN.
RX MEDLINE: 93094476.
RA Breiteneder H., Ferrelira F., Reikertorfer A., Duchene M.,
RA Valenta R., Hoffman-Sommergruber K., Ebner C., Breitenbach M.,
RA Kraft D., Scheiner O.,
RT "Complementary DNA cloning and expression in Escherichia coli of Aln
RT g 1, the major allergen in pollen of alder (Alnus glutinosa).";
RL J. Allergy Clin. Immunol. 90:909-917(1992).
CC -1- DISEASE: A CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----  
 DR EMBL: S50892; AAB24432.1; -  
 DR HSSP: P15494; IRTV.  
 DR INTERPRO: IPR000916; -  
 DR PFAM: PF00407; Bel\_v\_1; 1.  
 DR PRINTS: PR00634; BETALLERGEN.  
 DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
 KW Allergen; Pathogenesis-related protein.  
 FT INIT\_MET 0  
 FT SEQUENCE 159 AA; 17207 MW; 8DCB96C680689A6 CRC64;

Query Match 83.4%; Score 683; DB 1; Length 159;  
 Best Local Similarity 81.1%; Pred. No. 3.8e-52;  
 Matches 129; Conservative 12; Mismatches 18; Indels 0; Gaps 0;

QY 1 GVNVEETTSVIPARLFKAFLIDGDNLFKPAQPAISSVENIEGNGPGTIKTSFPE 60  
 DB 1 GVNVEAEFTTSVIPARLFKAFLIDGDKLPKPAPEVSSVENIEGNGPGTIKTSFPE 60  
 QY 61 GLPFKXVKDQVDEVDHTNEKYNYSVIEGPIGDTLEKISNEIKIVATPDGGSILKTSNKY 120  
 DB 61 GSPFKYKKEVDEVDHTNEKYNYSVIEGAGDALKEKVEIKIVAPDGSILKTSNKY 120  
 QY 121 HTKGDEHYKAQYKASKEMETLLRAVESYLLAHSDAYN 159  
 DB 121 HTKGDEHINAEQIKIEKAVGLKAVESYLLAHSDAYN 159

RESULT 13  
 MPAL\_CARBE STANDARD; PRT; 159 AA.  
 AC P38950;  
 RC TISSUE=POLLEN;  
 RX Nedergaard Larsen J., Stroeman P., Ipsen H.;  
 RT "PCR based cloning and sequencing of isogenes encoding the tree  
 pollen major allergen Car b 1 from *Carpinus betulus*, hornbeam";  
 DE MAJOR POLLEN ALLERGEN CAR B 1, ISOFORM 2 (CAR B 1).  
 OS *Carpinus betulus* (Hornbeam).  
 OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
 OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;  
 OC Fagales; Betulaceae; *Carpinus*.  
 RN [1]

RP SEQUENCE FROM N.A.  
 RC TISSUE=POLLEN;  
 RX MEDLINE: 92293162.  
 RA Nedergaard Larsen J., Stroeman P., Ipsen H.;  
 RT "PCR based cloning and sequencing of isogenes encoding the tree  
 pollen major allergen Car b 1 from *Carpinus betulus*, hornbeam";  
 DE Mol. Immunol. 29:703-711(1992).  
 CC -1- DISEASE: A CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH  
 AMERICA AND USSR.  
 CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
 PROTEIN.

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CC EMBL: X66933; CAA47367.1; -  
 DR HSSP: P15494; IRTV.  
 DR INTERPRO: IPR000916; -  
 DR PFAM: PF00407; Bel\_v\_1; 1.  
 DR PRINTS: PR00634; BETALLERGEN.  
 DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
 KW Allergen; Pathogenesis-related protein; Multigene family.  
 FT INIT\_MET 0  
 FT SEQUENCE 159 AA; 17356 MW; 7D55C78195C1C551 CRC64;

Query Match 78.1%; Score 640; DB 1; Length 159;  
 Best Local Similarity 75.5%; Pred. No. 1.9e-48;  
 Matches 120; Conservative 20; Mismatches 19; Indels 0; Gaps -0;

QY 1 GVNVEETTSVIPARLFKAFLIDGDNLFKPAQPAISSVENIEGNGPGTIKTSFPE 60  
 DB 1 GVNVEAEFTTSVIPARLFKAFLIDGDKLPKPAPEVSSVENIEGNGPGTIKTSFPE 60  
 QY 61 GLPFKXVKDQVDEVDHTNEKYNYSVIEGPIGDTLEKISNEIKIVATPDGGSILKTSNKY 120  
 DB 61 GSPFKYKKEVDEVDHTNEKYNYSVIEGAGDALKEKVEIKIVAPDGSILKTSNKY 120  
 QY 121 HTKGDEHYKAQYKASKEMETLLRAVESYLLAHSDAYN 159  
 DB 121 HAKGYHEVNAEMKGAEMAEKLLRAVESYLLAHSDAYN 159

RESULT 14  
 MPAL\_CARBE STANDARD; PRT; 159 AA.  
 AC P38949;  
 RC TISSUE=POLLEN;  
 RX Nedergaard Larsen J., Stroeman P., Ipsen H.;  
 RT "PCR based cloning and sequencing of isogenes encoding the tree  
 pollen major allergen Car b 1 from *Carpinus betulus*, hornbeam";  
 DE MAJOR POLLEN ALLERGEN CAR B 1, ISOFORMS 1A AND 1B (CAR B 1).  
 OS *Carpinus betulus* (Hornbeam).  
 OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
 OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;  
 OC Fagales; Betulaceae; *Carpinus*.  
 RN [1]

RP SEQUENCE FROM N.A.  
 RC TISSUE=POLLEN;  
 RX MEDLINE: 92293162.  
 RA Nedergaard Larsen J., Stroeman P., Ipsen H.;  
 RT "PCR based cloning and sequencing of isogenes encoding the tree  
 pollen major allergen Car b 1 from *Carpinus betulus*, hornbeam";  
 DE Mol. Immunol. 29:703-711(1992).  
 CC -1- DISEASE: A CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH  
 AMERICA AND USSR.  
 CC -1- MISCELLANEOUS: THE SEQUENCE SHOWN IS THAT OF ISOFORM 1A.  
 CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
 PROTEIN.

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CC EMBL: X66932; CAA47366.1; -  
 DR EMBL: X66918; CAA47357.1; -  
 DR HSSP: P15494; IRTV.  
 DR INTERPRO: IPR000916; -  
 DR PFAM: PF00407; Bel\_v\_1; 1.  
 DR PRINTS: PR00634; BETALLERGEN.  
 DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
 KW Allergen; Pathogenesis-related protein; Multigene family.  
 FT INIT\_MET 0  
 FT SEQUENCE 159 AA; 17271 MW; 21D0D17A38851E8E CRC64;

Query Match 75.6%; Score 619; DB 1; Length 159;  
 Best Local Similarity 73.0%; Pred. No. 1.2e-46;  
 Matches 116; Conservative 21; Mismatches 22; Indels 0; Gaps 0;

QY 1 GVNVEETTSVIPARLFKAFLIDGDNLFKPAQPAISSVENIEGNGPGTIKTSFPE 60



Mon Dec 11 10:50:31 2000

us-09-270-910-37.open.rsp

Page 9





GenCore version 4.5  
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OM nucleic - nucleic search, using sw model

Run on: December 11, 2000, 10:23:53 ; Search time 993.56 Seconds

(Without alignments)  
2110.027 Million cell updates/sec

Title: US-09-270-910-36

Perfect score: 480  
Sequence: 1 gggtgttattatgagac.....actcgatgcctacaactaa 480

Scoring table: IDENTITY\_NUC  
Gapop 10.0 , Gapext 1.0

Searched: 1033670 seqs, 2183789903 residues

Total number of hits satisfying chosen parameters: 2067340

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database :

GenEmbl:\*\*

1: gb\_ba1:\*  
2: gb\_ba2:\*  
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4: gb\_ov:\*  
5: gb\_pat:\*  
6: gb\_ph:\*  
7: gb\_pl1:\*  
8: gb\_pl2:\*  
9: gb\_pl2:\*  
10: gb\_pr1:\*  
11: gb\_pr2:\*  
12: gb\_pr3:\*  
13: em\_fun:\*  
14: em\_hum1:\*  
15: em\_hum2:\*  
16: em\_in:\*  
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27: em\_v1:\*  
28: gb\_htg1:\*  
29: gb\_htg2:\*  
30: gb\_in2:\*  
31: em\_ba1:\*  
32: em\_ba2:\*  
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36: gb\_htg3:\*  
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54: gb\_in3:\*  
55: gb\_htg15:\*  
56: gb\_htg16:\*  
57: gb\_htg17:\*  
58: em\_htg4:\*  
59: em\_htg5:\*  
60: em\_htg6:\*  
61: em\_htg7:\*  
62: em\_hum6:\*  
63: gb\_htg18:\*  
64: gb\_htg19:\*  
65: gb\_ba3:\*  
66: em\_htg8:\*  
67: em\_htg9:\*  
68: em\_htg10:\*  
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76: em\_htg18:\*  
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78: em\_htg20:\*  
79: em\_htg21:\*  
80: em\_htg22:\*  
81: em\_htg23:\*  
82: gb\_pr6:\*  
83: gb\_pr7:\*  
84: gb\_htg20:\*  
85: gb\_htg21:\*  
86: gb\_htg22:\*  
87: gb\_htg23:\*  
88: gb\_ro:\*  
89: gb\_sts1:\*  
90: gb\_sts2:\*  
91: gb\_sy:\*  
92: gb\_un:\*  
93: gb\_v11:\*  
94: gb\_v12:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	% Query Match	Length	DB ID	Description
1	480	100.0	483	8	BVZ80104
2	473.6	98.7	483	8	BVZ80106
3	470.4	98.0	672	5	I77098
4	470.4	98.0	691	8	BVBETV1
5	468.8	97.7	483	8	BVAJ2107
6	468.8	97.7	483	8	BVGC11
7	468.8	97.7	483	8	BVGC31
8	468.8	97.7	483	8	BVZ80098
9	467.4	97.4	480	5	I77099
10	467.2	97.3	483	8	BVAJ2108
11	467.2	97.3	483	8	BVZ80099
12	465.6	97.0	483	8	BVAJ2109

13	465.6	97.0	483	8	BVE6906	AJ006906 Betula ve
14	465.6	97.0	483	8	BV280105	280105 B. verrucosa
15	462.4	96.3	483	8	BV280101	280101 B. verrucosa
16	462.4	96.3	483	8	BV280103	280103 B. verrucosa
17	460.8	96.0	483	8	BVE6904	AJ006904 Betula ve
18	460.8	96.0	483	8	BVE6911	AJ006911 Betula ve
19	460.8	96.0	483	8	BV280102	280102 B. verrucosa
20	459.2	95.7	483	7	AF124838	AF124838 Betula pe
21	459.2	95.7	483	8	BVE6910	AJ006910 Betula ve
22	457.6	95.3	483	8	BVE6908	AJ006908 Betula ve
23	454.4	94.7	483	8	BVE6907	AJ006907 Betula ve
24	452.8	94.3	483	8	BVE6903	AJ006903 Betula ve
25	452.8	94.3	483	8	BV280100	280100 B. verrucosa
26	451.8	94.1	490	8	BVE6905	AJ006905 Betula ve
27	450.2	93.8	490	8	BVE6913	AJ006913 Betula ve
28	449.6	93.7	483	8	BVAJ2110	AJ002110 Betula ve
29	448	93.3	483	7	AF124837	AF124837 Betula pe
30	448	93.3	677	8	BVBETVLD	X77266 B. verrucosa
31	446.4	93.0	483	8	BVAJ2106	AJ002106 Betula ve
32	446.4	93.0	483	8	BVE6914	AJ006914 Betula ve
33	444.8	92.7	483	8	BVE6909	AJ006909 Betula ve
34	441.6	92.0	571	8	BVBETVIL	X77273 B. verrucosa
35	441.6	92.0	677	8	BVBETVIL	X77270 B. verrucosa
36	438.4	91.3	483	8	BVE6915	AJ006915 Betula ve
37	438.4	91.3	701	8	BVBETVIG	X77269 B. verrucosa
38	435.2	90.7	572	8	BVBETVIL	X77271 B. verrucosa
39	433.6	90.3	572	8	BVBETVIF	X77268 B. verrucosa
40	433.6	90.3	572	8	BVBETVIL	X77274 B. verrucosa
41	432	90.0	572	8	BVBETVIE	X77267 B. verrucosa
42	425.6	88.7	483	8	BVE6912	AJ006912 Betula ve
43	424	88.3	7	AF124839	AF124839 Betula pe	
44	417.6	87.0	687	8	BVBETVIM	X81972 B. verrucosa
45	417.6	87.0	714	8	BVBETVILB	X77200 B. verrucosa

## ALIGNMENTS

RESULT 1  
LOCUS BV280104 483 bp mRNA PLN 12-SEP-1996  
DEFINITION B.verrucosa mRNA for pollen allergen Betvl (clone 2227).  
ACCESSION 280104.1 GI:1542868  
VERSION 280104.1 GI:1542868  
KEYWORDS Betvl; pollen allergen.  
SOURCE European white birch.  
ORGANISM Betula pendula  
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;  
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;  
Rosidae; Fagales; Betulaceae; Betula.  
REFERENCE 1 (bases 1 to 483)  
AUTHORS Larsen, J.N.  
TITLE PCR based cloning and sequencing of isogenes encoding the tree  
pollen major allergen Bet v 1 from Betula verrucosa, white birch  
JOURNAL Unpublished  
REFERENCE 2 (bases 1 to 483)  
AUTHORS Larsen, J.N.  
TITLE Direct Submission  
JOURNAL Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Boge  
Alle 10-12, Horsholm, DK-2970, Denmark  
FEATURES  
source  
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/db\_xref="GI:1542869"  
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1026

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BASE COUNT 148 a 110 c 122 g 103 t

Query Match 100.0%; Score 480; DB 8; Length 483;  
Best Local Similarity 100.0%; Pred. No. 2, 1e-126;  
Matches 480; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	ggttgcttaataatgagactgagaccactcgttatacccaagactgactgcttaag	60		
Db	4	GGTGTGTTTATATATGAGACTGAGACCCTCGTTATCCACAGCTGACTGTTCAAG	63		
Qy	61	gcctttccttgatggcgataacctcttccaaaggttgaccccaagcattagcgt	120		
Db	64	GCCTTTATCCTTGATGCGATACCTCTTCCAAAGGTTGCACCCAGCCATTACAGT	123		
Qy	121	gttgaacaacttgagaagaatgagagccctgtagaccataagaagatcagcttcgga	180		
Db	124	GTTGAAAACATTTGAAGAAATGAGAGCCCTGGAACCATTTAAGAGATCAGCTTTCCGAA	183		
Qy	181	gpcctcccttcaagtagctggaagacagattgatgaagtggaacacacaacttcaa	240		
Db	184	GGCTTCCTTCAAGTACGTGAAGGACAGATGATGAGTGAGACACAAACTTCGAA	243		
Qy	241	tacattacagcgtgatcgagggcggtcccatatggcgagacatattgagaagatctcaac	300		
Db	244	TACAAATTACAGCGGTGATGAGGCGGTCCTATGAGGACNCAATTGAGAAATCTTCAAC	303		
Qy	301	gagataagaatgtaggaacccctgatggagatccatcttgagaatcagaacaagtac	360		
Db	304	GAGATTAAGATGATGGCAACCCCTGATGAGATCCATCTTGAAGATCAGCAACAGTAC	363		
Qy	361	cacaccaaagtgaccatgagtgagtgagagcagagcttaaggaagtaagaatgagc	420		
Db	364	CACACCAAGGTGACCATGAGTGAAGGACGAGCAGATTAAAGCAAGTAAAGATGGCG	423		
Qy	421	gagacactttgagggcggttgagagctacctttgacacatccgagtccataactaa	480		
Db	424	GAGACACTTTTGAGGGCGGCTTGAGAGCTACCTTGACACATCCGATCTTACAACTAA	483		

RESULT 2  
LOCUS BV280106 483 bp mRNA PLN 12-SEP-1996  
DEFINITION B.verrucosa mRNA for pollen allergen Betvl (clone 2301).  
ACCESSION 280106  
VERSION 280106.1 GI:1542872  
KEYWORDS Betvl; pollen allergen.  
SOURCE European white birch.  
ORGANISM Betula pendula  
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;  
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;  
Rosidae; Fagales; Betulaceae; Betula.  
REFERENCE 1 (bases 1 to 483)  
AUTHORS Larsen, J.N.  
TITLE PCR based cloning and sequencing of isogenes encoding the tree  
pollen major allergen Bet v 1 from Betula verrucosa, white birch  
JOURNAL Unpublished  
REFERENCE 2 (bases 1 to 483)  
AUTHORS Larsen, J.N.  
TITLE Direct Submission  
JOURNAL Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Boge  
Alle 10-12, Horsholm, DK-2970, Denmark  
FEATURES  
source  
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/note="obtained by PCR using cDNA as template"  
1. 483  
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Best Local Similarity 99.2%; Pred. No. 1.4e-124;  
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Db 4 GGTGTATTATATATAGACTGAGACCACCTGTATCCACAGCTCGACTGTTCAAG 63  
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QY 61 gctttatccttgatgagcgttaacctcttccaaaggtgaccccaagcattagcagt 120  
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Db 64 GCCTTATCCTTGATGCGGCAATATCTCTTCCAAAGGTTGACCCCAAGCATTAGCAGT 123  
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QY 121 gttgaacaacatgaagaaatggaaggcctggaacattagaagatcagcttccgaa 180  
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Db 124 GTTGAACAACTGTAAGAAATGAGAGGCGCTGGAACCATTAAGAAATCAGCTTCCGGA 183  
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QY 181 ggcctcccttcaagtaagcgaagcgaaggttgatgaggttgagccacaacattcaaa 240  
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Db 184 GGCCTCCCTTCAAGTACGTAAGAGACAGAGTTGATGAGTGAGACACACAAACTTCAAA 243  
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QY 241 tacaattacagcgtgacgagcgttcccatagcgagcagcattgagaagatcccaac 300  
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Db 244 TACAATTACAGCGGTGATCGAGGCGGCTCCATAGCGGACACATTGGAAGATCTCCAA 303  
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QY 301 gagataaagatagtggaacccctgatgagaatcattcttgaagatcagcaacaagtac 360  
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Db 304 GAGATTAAGATAGTGGCAACCCCTGATGAGATCCATCTTGAAGATCAGCAACAAGTAC 363  
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QY 361 cacacaaaggtgacatgagtggaagcgaagcaggttaagcagaatgaagagtc 420  
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Db 364 CACACCAAAGGTACCATGAGTGAAGGCGAGCAGGTTAAGCAAGTAAAGAAATGCCG 423  
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QY 421 gagacactttgagggcgttggagactaccttggcacactcagatgctcaactaa 480  
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Db 424 GAGACACTTTGAGGGCGCTTGAGAGCTACCTTTGGCACACTCCGATGCCCTCAACTAA 483  
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RESULT 3  
LOCUS 177098 672 bp DNA  
DEFINITION Sequence 21 from patent US 5693495.  
ACCESSION 177098  
VERSION 177098.1 GI:3013252  
KEYWORDS  
SOURCE Unknown.  
ORGANISM Unknown.  
REFERENCE 1 (bases 1 to 672)  
AUTHORS Breiteneder,H., Valenta,R., Breitenbach,M., Kraft,D., Rumpold,H.  
and Scheiner,O.  
TITLE Allergens of alder pollen and applications thereof  
JOURNAL Patent: US 5693495-A 21 02-DEC-1997;  
FEATURES Location/Qualifiers  
source 1..672  
BASE COUNT 218 a 130 c 158 g 166 t  
ORIGIN

Query Match 98.0%; Score 470.4; DB 5; Length 672;  
Best Local Similarity 98.8%; Pred. No. 1.2e-123;  
Matches 474; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

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Db 4 GGTGTATTATATATAGACTGAGACCACCTGTATCCACAGCTCGACTGTTCAAG 63  
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QY 61 gctttatccttgatgagcgttaacctcttccaaaggtgaccccaagcattagcagt 120  
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Db 64 GCCTTATCCTTGATGCGGCAATATCTCTTCCAAAGGTTGACCCCAAGCATTAGCAGT 123  
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QY 121 gttgaacaacatgaagaaatggaaggcctggaacattagaagatcagcttccgaa 180  
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Db 124 GTTGAACAACTGTAAGAAATGAGAGGCGCTGGAACCATTAAGAAATCAGCTTCCGGA 183  
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QY 181 ggcctcccttcaagtaagcgaagcgaaggttgatgaggttgagccacaacattcaaa 240  
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QY 421 gagacactttgagggcgttggagactaccttggcacactcagatgctcaactaa 480  
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Db 424 GAGACACTTTGAGGGCGCTTGAGAGCTACCTTTGGCACACTCCGATGCCCTCAACTAA 483  
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RESULT 4  
LOCUS BVBETV1 691 bp mRNA  
DEFINITION Birch mRNA for pollen allergen Betv1.  
ACCESSION X15877  
VERSION X15877.1 GI:17937  
KEYWORDS allergen; Betv1 gene; pollen allergen.  
SOURCE European white birch.  
ORGANISM Betula pendula  
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;  
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;  
Rosidae; Fagales; Betulaceae; Betula.  
REFERENCE 1 (bases 1 to 691)  
AUTHORS Breiteneder,H., Pettenburger,K., Bito,A., Valenta,R., Kraft,D.,  
Rumpold,H., Scheiner,O. and Breitenbach,M.  
TITLE The gene coding for the major birch pollen allergen Betv1, is  
highly homologous to a pea disease resistance response gene  
JOURNAL EMBO J. 8 (7), 1935-1938 (1989)  
MEDLINE 90005395  
COMMENT Data kindly reviewed (01-MAY-1990) by Breitenbach M.  
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ORIGIN

Query Match      98.0%; Score 470.4; DB 8; Length 691;
Best Local Similarity 98.8%; Pred. No. 1.2e-123;
Matches 474; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

QY 1 ggtgtttaataatgagactgagaccacctctgtatcccaagactcgactgttcaag 60
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Db 52 GGTGTTTCAATTACGAACATGAGACCACTCTTTATCCAGACGCTCCAGCTTTCAAG 111

QY 61 gccctatccctgactgagataacctcttccaaaggctgaccccccaagccattagagt 120
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Db 112 GCCTTATCCTTGATGGCGATTAATCTTTCCAAAGGTTGCACCCCAAGCATTAGCAGT 171

QY 121 gttgaacaacttgaagaaatgagagcctggaacccattagaagatcagcttccgaa 180
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Db 172 GTTGAACAACTTGAAGAAATGAGGGCGCTGGAACCATTAAGAAATCAGCTTCCGAA 231

QY 181 ggcctcccttcaagtaactgaaagagagatgaggtgagagcaacaacttcaaa 240
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Db 232 GGGTTCCTTTCAAGTACGTGAAGAGACAGATGATGAGGTGAGCCACACAACTTCAAA 291

QY 241 tacaattacagcgtgactcgaaggcggtcccatagagcgacacattggaagatctccaac 300
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Db 292 TACAAATTACGCGTGAATCGAGGGCGGTCCATFAGGCGACACATFAGAGATCTCCAA 351

QY 301 gagataaagatagtggaacacctgtagagagatccatcttgaagatcagaacaagtac 360
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QY 361 cacacaaagggtgacacatgagtggaagcgagacaggttaagcaagttaagaatgggc 420
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Db 412 CACACCAAAAGTGATGAGTGAAGGAGCAGACAGCTTAAAGCAATAAAGAAATGGGC 471

QY 421 gagacaccttgaaggcggttgaagagctacctcttgacacactcgaatgcctacaactaa 480
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Db 472 GAGACACTTTTGAAGGGCGCTTGAGAGCTACTCTTGCGACACTCCGATGGCTCAACTAA 531

RESULT 5
BVAFJ2107      483 bp      mRNA      PLN      07-JAN-2000
LOCUS          Betula verrucosa mRNA for major pollen allergen Bet v 1 (Bet v 1
DEFINITION     at12).
ACCESSION     AJ002107
VERSION       AJ002107.1 GI:2564221
KEYWORDS      Betv1 gene; pollen allergen.
SOURCE        European white birch.
ORGANISM      Betula pendula
Eukaryote; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons; core
eudicots; Rosidae; eurosids I; Fagales; Betulaceae; Betula.
REFERENCE
AUTHORS        Friedl-Hajek,R., Radauer,C., O'Riordan,G.,
                Hoffmann-Sommergruber,K., Leberl,K., Scheiner,O. and Breyteneder,H.
                New Bet v 1 isoforms including a naturally occurring truncated form
                of the protein derived from Austrian birch pollen
                Mol. Immunol. 36 (10), 639-645 (1999)
JOURNAL        99437514
MEDLINE        2 (bases 1 to 483)
REFERENCE      Friedl-Hajek,R.
AUTHORS        Direct Submission
TITLE          Submitted (17-OCT-1997) Friedl-Hajek R., Institute of General and
                Experimental Pathology, University of Vienna, Wehringer Guertel
                18-20, A-1090 Vienna, AUSTRIA
FEATURES
                Location/Qualifiers
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BASE COUNT     148 a 110 c 121 g 104 t
ORIGIN

Query Match      97.7%; Score 468.8; DB 8; Length 483;
Best Local Similarity 98.5%; Pred. No. 3.3e-123;
Matches 473; Conservative 0; Mismatches 7; Indels 0; Gaps 0;

QY 1 ggtgtttaataatgagactgagaccacctctgtatcccaagactcgactgttcaag 60
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Db 4 GGTGTTTCAATTACGAACATGAGACCACTCTTTATCCAGACGCTCCAGCTTTCAAG 63

QY 61 gccctatccctgactgagataacctcttccaaaggctgaccccccaagccattagagt 120
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Db 64 GCCTTATCCTTGATGGCGATTAATCTTTCCAAAGGTTGCACCCACAGCATTAGCAGT 123

QY 121 gttgaacaacttgaagaaatgagagcctggaacccattagaagatacagcttccgaa 180
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Db 124 GTTGAACAACTTGAAGAAATGAGGGCGCTGGAACCATTAAGAAATCAGCTTCCGAA 183

QY 181 ggcctcccttcaagtaactgaaagcgagacaggttgaaggttggacacaaacttcaaa 240
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Db 184 GGGTTCCTTTCAAGTACGTGAAGGAGACAGATGATGAGGTGAGCACCAACAACTTCAAA 243

QY 241 tacaattacagcgtgactcgaaggcggtcccatagagcgacacattggaagatctccaac 300
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QY 421 gagacaccttgaaggcggttgaagagctacctcttgacacacctcgaatgcctacaactaa 480
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Db 424 GAGACACTTTTGAAGGGCGCTTGAGAGCTACTCTTGCGACACTCCGATGGCTCAACTAA 483

RESULT 6
BVGCI1         483 bp      DNA      PLN      08-MAY-1998
LOCUS          B.verrucosa gene for major allergen Bet v 1 (clone BVGCI1).
DEFINITION     272429
ACCESSION     272429
VERSION       272429.1 GI:1321711
KEYWORDS      major allergen.
SOURCE        European white birch.
ORGANISM      Betula pendula
Eukaryote; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;
Rosidae; Fagales; Betulaceae; Betula.
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	BASE COUNT	ORIGIN
REFERENCE AUTHORS	1 (bases 1 to 483)	
TITLE	Hoffmann-Sommergruber, K.	
JOURNAL	Direct Submission	
REFERENCE AUTHORS	Submitted (29-Apr-1996) Hoffmann-Sommergruber K., University of Vienna, Vienna, Austria, Gen. & Exp. Pathology, Wehringer Guertel 18-20, Vienna, Austria, A-1090 2 (bases 1 to 483)	
TITLE	Hoffmann-Sommergruber, K., Vanek-Kreibitz, M., Radauer, C., Wen, J., Ferreira, P., Scheiner, O. and Brettenner, H.	
JOURNAL MEDLINE FEATURES	Genomic characterization of members of the Bet v 1 family: genes coding for allergens and pathogenesis-related proteins share Intron positions	
source	Gene 197 (1-2), 91-100 (1997) 97473499	
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	Query Match	97.7%;	Score 468.8 ;	DB 8 ;	Length 483 ;	
	Best Local Similarity	98.5%;	Pred. No. 3.3e-123 ;			
	Matches 473 ;	Conservative	0 ;	Mismatches 17 ;	Indels 0 ;	Gaps 0 ;
QY	1	ggtgctttaataatgaagactgtagaccacacctgtgatcccaagcagctcgagtccaag	60			
Db	4	GGGTGTTTCATTACGAAGACTGAGGCCACTCTGTATCCCGACAGCTCGACTGTTCAAG	63			
QY	61	gccttalccttgatgycgataaacctcttcocaaagttgacccccaaagcatlagaagt	120			
Db	64	GCGTTFATCCTTGATGGCGGATAATCTCTTCCAAAGTTGCACCACCATTAAGCAGT	123			
QY	121	gttgaanaacattlgaganaatggaggcgctgtaacocatlaagaagataagctttcccga	180			
Db	124	GTGAAAACATTGAAAGGAATGAGGGCGCTGGAACCATTAAGAATAATCAGCTTCCC	183			
QY	181	ggccctcccttcaagtacgttaagagacagagtltga.tgaggtgagaccacaacaattcaa	240			
Db	184	GGCTTCCTTTCAGTAGTACGTGAAGSACAGATGTGATGAGGTGGACACACAACCTTCAA	243			
QY	241	tacaattacagcgtgatctgagaggcggtccca.taaagcgacacacatttggagaagatctccaac	300			
Db	244	TACATTATCACCGTATGAGGGCGGTCCCATAGCGCACACATTGGAGAAATCTCCAAC	303			
QY	301	gagatagaagatagtgagcacccccctfgatgyagaatccatcttgaagaataagacaagaatcac	360			
Db	304	GAGATAAAGATAGTGGCAACCCCTGATGGAAGATCTTCATTGGAAGATACGGAACCAAGTAC	363			
QY	361	cacacccaaaagt.tgaaccatgagtgtaaagcagaagcaggtttaaagcagaftaaagaatgggc	420			
Db	364	CACACCAAAGGTGACCAATGAGAGTGAAGGCCAAGCAAGTAAAGGCCAAGTAAAGAAATGGGC	423			
QY	421	gagacacttttgaggggccgttgaagatcactcttggcacactcogalyoctaacaattaa	480			
Db	424	GAGACACTTGTGAGGCGCGTGAAGAGTACTCTTGACACACTCGAGATGCCTACAACTAA	483			
RESULT	7					
IWGC31						

LOCUS	BVCC31	483 bp	DNA	PLN	08-MAY-1998
DEFINITION	B.verrucosa gene for major allergen Bet v 1 (clone BVCC31).				
ACCESSION	Z72432				
VERSION	Z72432.1 GI:1321719				
KEYWORDS	major allergen.				
SOURCE	European white birch.				
ORGANISM	Betula pendula				
REFERENCE	Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons; Rosidae; Fagales; Betulaceae; Betula.				
AUTHORS	1 (bases 1 to 483)				
TITLE	Hofmann-Sommergruber, K.				
REFERENCE	Submitted (29-APR-1996) Hofmann-Sommergruber K., University of Vienna, Vienna, Austria, Gen. & Exp. Pathology, Wehringer Guertel 18-20, Vienna, Austria, A-1090				
AUTHORS	2 (bases 1 to 483)				
TITLE	Hofmann-Sommergruber, K., Vanek-Krebitz, M., Radauer, C., Wen, J., Ferreira, F., Scheiner, O. and Bretteneder, H.				
REFERENCE	Genomic characterization of members of the Bet v 1 family: genes coding for allergens and pathogenesis-related proteins share intron positions				
JOURNAL	Gene 197 (1-2), 91-100 (1997)				
MEDLINE	97473499				
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CDS					
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Query Match	97.7%; Score 468.8; DB: 8; Length 483;				
Best Local Similarity	98.5%; Pred. No. 3.3e-123;				
Matches 473; Conservative	0; Mismatches 7; Indels 0; Gaps 0;				
QY	1 ggtgtgttaataatgaagaactagagacacactgttaccacagagctcgactgttcaag 60				
DB	4 GGTGTTTCAATTAGGAACCTGAGGCCACCTCTGTTATCCAGCAGCTCGACTGTTCAAG 63				
QY	61 gcccttacccttgatgtagcgaataacctcttccaaaggttgcaccccaagccattagaagt 120				
DB	64 GCCTTATTCCTTGAGGCGGATATCTCTTCCAAAGGTTGACACCCCAAGCCATTAGCAGT 123				
QY	121 gttagaacaattgagaagaatggaagggcctgtaaacattagaagaatacagttttccgaa 180				
DB	124 GTTGAAGAACTTGAAGAAATGAGAGGCGCTGGAACCATTAAGAAATACGCTTTCGGA 183				
QY	181 ggcctcccttcaagtaagtgaaagacagagttgattgaggtggaacacacaaacttcaaa 240				
DB	184 GGCCTCCCTTCAAGTACGTGAAGACAGAGTGTATGAGGTGAGACACAAACTTCAA 243				
QY	241 tacaattcaagcgtgatacgaaggcggtcccatagggcgaacacatttggagaagaattccaac 300				
DB	244 TACAAATTACAGGCTGATGAGAGGCGGCTCCATAGCGCACACATTGAGAGAAATCTCCAAC 303				
QY	301 gagataagaatagtgagacacccctgattgagaattccattctgtaagaatcagaacaagttac 360				
DB	304 GAGATTAAGATATGTGGCAACCCCTGATGAGAGATTCATCTTGAAGATTCAGCAACAGATTAC 363				
QY	361 cacaccnaagttgacatgaggtggaaggcaagcaggtttaaggcaaatgaagaatagtc 420				

Dn	364	CACACCAGGTCATCCATGTGGTGAAGGCAGACCGACTTAAGCAGTTAAAGAATAATGGCC	423
OY	421	gagacactttggaggcgcttgagagcctaaccttgcgaactccgatgtaccatactaa	480
Dd	424	GAGACACTTTTGAGGCCGCTTGAGACCTAAGCTTCTTGCAACATCCGATCGCTAACACTTA	483
RESULT	8		
BVZ80098		BVZ80098	483 bp mRNA PLN 12-SEP-1996
LOCUS		B.verrucosa mRNA for pollen allergen Bet v 1 (clone 224).	
DEFINITION		280098	
VERSION		280098.1 GI:1542856	
KEYWORDS		Betv1; pollen allergen.	
SOURCE		European white birch.	
ORGANISM		Betula pendula	
REFERENCE		Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;	
AUTHORS		euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;	
TITLE		Rosidae; Fagales; Betulaceae; Betula.	
JOURNAL		1 (bases 1 to 483)	
REFERENCE		Larsen,J.N.	
AUTHORS		PCR based cloning and sequencing of isoforms encoding the three	
TITLE		pollen major allergen Bet v 1 from Betula verrucosa, white birch	
JOURNAL		Unpublished	
FEATURES		2 (bases 1 to 483)	
source		Larsen,J.N. Direct Submision Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Boge Alle 10-12, Hørsholm, DK-2970, Denmark Location/Qualifiers 1..483 /organism="Betula pendula" /db_xref="taxon:3505" /rissue_type="pollen obtained from Allergen, Sweden" /clone="224" /note="obtained by PCR using cDNA as template"	
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BASE COUNT	148 a	110 c	121 g 104 t
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Query Match	97.7%; Score 468.8; DB 8; Length 483;		
Best Local Similarity	98.5%; Pred. No. 3.3e-123;		
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Dd	4	GGGTTTTCAATTACAATACTGAGACCACTCGTTATTCGACGCGCTCGACTGTTCAG	63
OY	61	gccattatccctgatgagcataaacctcttccaagaagttgacccccacaattagcagt	120
Dd	64	GCCTTTATCTGATGAGCGCATATATCTCTTCCAAAAGTTGCAACCCCAACCTTAGCACT	123
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Dd	124	GTTGAAAAAATITGMAAGAAATGAGAGCGCTCGAACAACATTAAABAATCATAGCTTTCCC	183
OY	181	ggcctcccttcaagtacgttgaagacagagttgattgagtygagcacacaacttcaa	240
Dd	184	GGCTTCCCTTCCAAGTACGTGAAGCAAGTTGATGAGGTGAGCACCAAAACTTTCAA	243
OY	241	tacatttacagcgtagatcgaggcggtcccatatagcgacacattgagagaagatctccaa	300

Db	244	TACAAATTACAGCGCTGATTCGAGGGCGGCTCCATGAGGGGACACATTTGGAAGAATCTCCAAC	303
Qy	301	gagataaagatagtaggcaacccctgtaggagatccatcttgaagatcagcaagaatgac	360
Db	304	GAGATTAAGATATAGTGGCAACCCCTGATGAGGATCCATCTTGAAGATCAGCAACAATGTTAC	363
Qy	361	ccacacaaagtgatccatgtagtgtaagggagagcaaggttaaggaagtaagaatgggc	420
Db	364	CACACCAAAAGGTACCATGATGAGGTGAAGGCGAGACAGACAGTTTAAGCAAGTAAAGAAATGGGC	423
Qy	421	gagacactttgagggcgcttgtagactacccctcttgcaacacccgatgctaactaa	480
Db	424	GAGACACTTTTGAGGGCGCTTGAGACTTACCTCTTGGCACACCTCCGATGCTTACACTTA	483
RESULT	9		
LOCUS	177099	480 bp	DNA
DEFINITION	Sequence 22 from patent US 5693495.		PAT
ACCESSION	177099		
VERSION	177099.1	GI:3013253	
KEYWORDS			
SOURCE	Unknown.		
ORGANISM	Unknown.		
REFERENCE	1 (bases 1 to 480)		
AUTHORS	Breitenbach,H., Valenta,R., Breitenbach,M., Kraft,D., Rumpold,H.		
TITLE	Allergens of alder pollen and applications thereof		
JOURNAL	Patent: US 5693495-A 22 02-DEC-1997;		
FEATURES	Location/Qualifiers		
source	1..480		
BASE COUNT	147 a 110 c 120 g 103 t		
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Query Match	97.4%; Score 467.4; DB 5; Length 480;		
Best Local Similarity	98.7%; Pred. No. 8, 2e-123;		
Matches 471; Conservative	0; Mismatches 6; Indels 0; Gaps 0.		
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Qy	61	gccttatccctgtagtgcgataacccctcttccaaagcttgaccccccaagcatlagcgt	120
Db	64	GCCTTATCCTTGATGCGCATATATCTCTTCCAAAGTTGCAOCCCAACCATTAACACT	123
Qy	121	gttgaacaactggaagaaatggaaggccttggaacataaagaatcagcttcccgaa	180
Db	124	gTTGAAACAACTTGAAAGGAATGAGGCGCTGCAACCATTAAGAGATCAGCTTCCGGA	183
Qy	181	ggccctccctttaaagacgtggaaggaacaagttagtagaggttgagccacaacatctaa	240
Db	184	GgTTCCTCTTCAAGTACGTGAAAGGCAAGTGTGATGAGGTGAGACCAACCAAACTTCAAA	243
Qy	241	tacaattacagcgtagtcagagcgagtlcccatagagcgacacatltgagaagatctccaac	300
Db	244	TACAATTACAGCGTGAATGACAGGCGGCTCCATAGGCGACACATTTGAGAGAATCTCCAAC	303
Qy	301	gagataaagatagtgagcaacccctgtaggagatccatcttgaagatcagcaacaagtac	360
Db	304	GAGATTAAGATATAGTGGCAACCCCTGATGAGGATCCATCTTGAAGATCAGCAACAATGTC	363
Qy	361	ccacacaaagtgtagccatgtagtgtaagggagagcaaggttaaggaagtaagaatgggc	420
Db	364	CACACCAAAAGGTGACCATGATGAGGTGAAGGCGAGACAGGTTTAAGCAAGTAAAGAAATGGGC	423
Qy	421	gagacacttttagggcgcttgtagactacccctcttgcaacacccgatgctaactaac	477
Db	424	GAGACACTTTTGAGGGCGCTTGAGACTTACCTCTTGGCACACCTCCGATGCTTACACTTA	480

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RESULT 10
LOCUS   BVAJ2108      483 bp      mRNA      PLN      07-JAN-2000
DEFINITION Betula verrucosa mRNA for major pollen allergen Bet v 1 (bet v 1
ACCESSION AJ002108.1 GI:2564223
VERSION   AJ002108.1
KEYWORDS   Bet v1 gene; pollen allergen.
SOURCE     European white birch.
ORGANISM   Betula pendula
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons; core
eudicots; Rosidae; eustosids I; Fagales; Betulaceae; Betula.
REFERENCE 1 (bases 1 to 483)
AUTHORS   Friedl-Hajek R., Radauer C., O'Riordain G.,
Hoffmann-Sommergruber K., Leberl K., Scheiner O. and Breiteneder H.
New Bet v 1 isoforms including a naturally occurring truncated form
of the protein derived from Austrian birch pollen
JOURNAL   Mol. Immunol. 36 (10), 639-645 (1999)
MEDLINE   99437514
REFERENCE 2 (bases 1 to 483)
AUTHORS   Friedl-Hajek R.
TITLE     Direct Submission
JOURNAL   Submitted (17-OCT-1997) Friedl-Hajek R., Institute of General and
Experimental Pathology, University of Vienna, Wehringer Guertel
18-20, A-1090 Vienna, AUSTRIA
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BASE COUNT  148 a 110 c 122 g 103 t
ORIGIN
Query Match          97.3%; Score 467.2; DB 8; Length 483;
Best Local Similarity 98.3%; Pred. No. 9.3e-123;
Matches 472; Conservative 0; Mismatches 8; Indels 0; Gaps 0;

QY 1 ggtgtttaataatagagctgagaccactctgttatccagcagctgcactgttcaag 60
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DB 4 GGtGtTTTCATTAAGCAAACTGAGACCACCTCTGTATCCACGGCTCGACTGTCAAG 63

QY 61 gacctatccctgtagcgataacccctcttccaaaggttgaccccaagccattacagt 120
    |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
DB 64 GCCTTATCCTTGATGCGATATATCTGTCGTCCAAAGGTTCACCCCAAGCCATTACAGT 123

QY 121 gtgtaaaacatitgaagaaatgagggcctggaaccattaaagaatcagctttccgaa 180
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DB 124 GTTGAAGAACTGAAGAAATGAGGGCCCTGGAACATTAAAGATCAGCTTCCCGAA 183

QY 181 ggcctcccttcaagtacgtgaagacagagtgtgatgagtgacacacaacattcaaa 240
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DB 184 GGCTTCCCTTTCAAGTAAAGTGAAGGACAGAGTTGATGAGTGACCAACAACTTCAAA 243

QY 241 tataattaagcgctgtagcgagggcgctcccatagcgcaacatitgagaagatctccaac 300
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DB 304 GAGATAAGATATAGTGGCAACCCCTGATGAGAGATCCATCTTGAAGATCAGACAACTAC 363

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DB 364 CACACCAAGGTGCACCTGAGGTGAAGGACAGACGCTTAAGCCAAAGTAAAGTAATGGCC 423

QY 421 gagacatttgagggccttgaagagctactcttggcacacccagatgctccaactaa 480
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DB 424 GAGACACTTTTGAAGGGCGCTTGAAGACTACTCTTGACACACTCCGATGCTTCAACTAA 483

RESULT 11
LOCUS   BVZ80099      483 bp      mRNA      PLN      12-SEP-1996
DEFINITION B.verrucosa mRNA for pollen allergen Betv1 (clone 2230).
ACCESSION Z80099
VERSION   Z80099.1 GI:1542858
KEYWORDS   Betv1; pollen allergen.
SOURCE     European white birch.
ORGANISM   Betula pendula
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;
Rosidae; Fagales; Betulaceae; Betula.
REFERENCE 1 (bases 1 to 483)
AUTHORS   Larsen J.N.
TITLE     PCR based cloning and sequencing of isoforms encoding the tree
pollen major allergen Bet v 1 from Betula verrucosa, white birch
JOURNAL   Unpublished
REFERENCE 2 (bases 1 to 483)
AUTHORS   Larsen J.N.
TITLE     Direct Submission
JOURNAL   Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Boge
Alle 10-12, Horsholm, DK-2970, Denmark
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BASE COUNT  148 a 111 c 121 g 103 t
ORIGIN
Query Match          97.3%; Score 467.2; DB 8; Length 483;
Best Local Similarity 98.3%; Pred. No. 9.3e-123;
Matches 472; Conservative 0; Mismatches 8; Indels 0; Gaps 0;

QY 1 ggtgtttaataatagagctgagaccactctgttatcccaagcagctgcactgttcaag 60
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BASE COUNT      149 a      108 c      121 g      105 t
ORIGIN
Query Match      97.0%: Score 465.6; DB 8; Length 483;
Best Local Similarity 98.1%: Pred. No. 2.7e-122;
Matches 471; Conservative 0; Mismatches 9; Indels 0; Gaps 0;

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QY 121 gttgaaacattgaagaagaatgagggccttgaaacattagaagatcagcttcccgaa 180
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Db 124 GTTGAAAACATTTGAAGGAATGAGGGCGCTTGGAACCATTAAGAAATCAGCTTCCGAA 183

QY 181 ggcctcccttcaagtcgtaagcagagatgtaggttgagacacacaaacttcaaa 240
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Db 184 GCGTTCCTTTCAAGTACGTAAGAGACAGATTGATGAGTGGACACACAACTTCAAA 243

QY 241 tacaattacagcgtgatcgagggcggtcccatagggcacacattggaagatctccaac 300
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RESULT 14
LOCUS      BVZ80105      483 bp      mRNA      PLN      12-SEP-1996
DEFINITION B.verrucosa mRNA for pollen allergen Betv1 (clone 2229).
ACCESSION  Z80105
VERSION     280105.1 GI:1542870
KEYWORDS   Betv1; pollen allergen.
SOURCE      European white birch.
ORGANISM   Betula pendula
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;
            Rosidae; Fagales; Betulaceae; Betula.
            1 (bases 1 to 483)
REFERENCE   Larsen J.N.
AUTHORS    PCR based cloning and sequencing of isoforms encoding the tree
            pollen major allergen Bet v 1 from Betula verrucosa, white birch
            unpublished
            2 (bases 1 to 483)
JOURNAL    Larsen J.N.
REFERENCE   Direct Submission
AUTHORS    Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Boge
JOURNAL    Alle 10-12, Horsholm, DK-2970, Denmark
FEATURES   Location/Qualifiers
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BASE COUNT      148 a      109 c      124 g      102 t
ORIGIN
Query Match      97.0%: Score 465.6; DB 8; Length 483;
Best Local Similarity 98.1%: Pred. No. 2.7e-122;
Matches 471; Conservative 0; Mismatches 9; Indels 0; Gaps 0;

QY 1 ggtgtgttaattatgagactgagaccacctctgtatcccaagcagctgactgtaacg 60
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QY 61 gaccttacccttgatggcgataacctcttccaaaggttgaccccaagccattagcagt 120
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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Db 424 GAGACACTTTTGAGGGCGGTTGAGAGCTACTCTTGSCACACTCCGATCGCTACAACTAA 483

RESULT 15
LOCUS      BVZ80101      483 bp      mRNA      PLN      12-SEP-1996
DEFINITION B.verrucosa mRNA for pollen allergen Betv1 (clone 184).
ACCESSION  Z80101
VERSION     280101.1 GI:1542862
KEYWORDS   Betv1; pollen allergen.
SOURCE      European white birch.
ORGANISM   Betula pendula
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            euphyllophytes; Spermatophyta; Magnoliophyta; eudicotyledons;
            Rosidae; Fagales; Betulaceae; Betula.
            1 (bases 1 to 483)
REFERENCE   Larsen J.N.
AUTHORS    PCR based cloning and sequencing of isoforms encoding the tree
            pollen major allergen Bet v 1 from Betula verrucosa, white birch
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JOURNAL Unpublished  
REFERENCE 2 (bases 1 to 483)  
AUTHORS Larsen, J.N.  
TITLE Direct Submission  
JOURNAL Submitted (06-SEP-1996) Larsen J.N., ALK A/S, ALK Research, Bøge  
Alle 10-12, Hørsholm, DK-2970, Denmark  
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BASE COUNT 146 a 111 c 122 g 104 t  
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Best Local Similarity 96.3%; Score 462.4; DB 8; Length 483;  
Matches 469; Conservativity 97.7%; Pred. No. 2.2e-121;

Mismatches 0; Indels 0; Gaps 0;

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QY 241 tacaattacagcgtgatcgagggcggtcccatlaagcgacacattgagagaatctccaac 300  
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DB 304 GAGATTAAGATAGTGGAAACCCCTGATGAGGATCCATCTTGAAGATCAGCAACAAGTAC 363  
QY 361 cacaccaaggtagcactgaaggtgaaggtgagcaggttaagcaagttaagaataatgggc 420  
DB 364 CACACCAAGGCGACCATGAGTGAAGGACGAGCAGTTAAGGCAAGTAAAGAAATGGGC 423  
QY 421 gagacaatttgagggcggttgagagctacctcttgacacatccgatgcctacaactaa 480  
DB 424 GAGACACTTTTGAAGGCGCTTGAAGAGCTACCTTTGGACACTCCGATGCTTACAACATA 483

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Job time: 21053 sec

GenCore version 4.5  
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OM nucleic - nucleic search, using sw model

Run on: December 11, 2000, 10:23:53 ; Search time 26.17 Seconds  
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Title: US-09-270-910-36

Perfect score: 480  
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Scoring table: IDENTITY\_NUC  
Gapop 10.0 , Gapext 1.0

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Total number of hits satisfying chosen parameters: 524120

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

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1	470.4	98.0	672	2	US-07-847-010-21 Sequence 21, Appl
2	467.4	97.4	480	2	US-07-847-010-22 Sequence 22, Appl
3	374.4	78.0	665	2	US-07-847-010-1 Sequence 1, Appl
4	371.4	77.4	480	2	US-07-847-010-15 Sequence 2, Appl
5	353.6	73.7	655	2	US-07-847-010-16 Sequence 15, Appl
6	350.6	72.0	480	2	US-07-847-010-12 Sequence 16, Appl
7	348.8	72.7	742	2	US-07-847-010-13 Sequence 13, Appl
8	345.8	72.0	480	2	US-07-847-010-9 Sequence 9, Appl
9	345.6	72.0	619	2	US-07-847-010-18 Sequence 18, Appl
10	344	71.7	860	2	US-07-847-010-10 Sequence 10, Appl
11	342.6	71.4	480	2	US-07-847-010-19 Sequence 19, Appl
12	341	71.0	480	2	US-08-363-010-3 Sequence 3, Appl
13	128	26.7	739	1	US-08-363-010-2 Patent No. 5312912
14	126.8	26.4	465	1	US-08-199-219-5 Sequence 5, Appl
15	87.4	18.2	2290	7	US-08-911-434A-3 Sequence 3, Appl
16	69	14.4	737	5	US-08-232-463-14 Sequence 14, Appl
17	67.4	14.0	593	4	US-08-728-956-1 Sequence 1, Appl
18	52.6	11.0	7218	1	US-08-363-010-4 Sequence 4, Appl
19	43.8	9.1	2593	1	US-07-718-575-13 Sequence 13, Appl
20	38.4	8.0	105	1	US-08-481-206-13 Sequence 13, Appl
21	36.8	7.7	1591	1	US-07-903-456-1 Sequence 1, Appl
22	36.4	7.6	3344	1	US-08-258-287B-41 Sequence 41, Appl
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	43	29.4	6.1	1120	1	US-08-254-493-3	Sequence 3, Appl
	44	29.4	6.1	1120	2	US-08-408-222B-3	Sequence 3, Appl
	45	29.4	6.1	2111	4	US-08-966-316-6	Sequence 6, Appl

#### ALIGNMENTS

RESULT 1  
US-07-847-010-21  
; Sequence 21, Application US/07847010  
; Patent No. 5693495  
; GENERAL INFORMATION:  
; APPLICANT: Breiteneder, Helmo  
; APPLICANT: Reikertstorfer, Arnold  
; APPLICANT: Valenta, Rudolf  
; APPLICANT: Hofmann - Sommergruber, Karin  
; APPLICANT: Breitenbach, Michael  
; APPLICANT: Kraft, Dietrich  
; APPLICANT: Rumpold, Helmut  
; APPLICANT: Scheiner, Otto  
; APPLICANT: Ebner, Christof  
; APPLICANT: Ferreltra, Fatima  
; TITLE OF INVENTION: Allergens of Alder Pollen and  
; TITLE OF INVENTION: Applications Thereof  
; NUMBER OF SEQUENCES: 23  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Pennile & Edmonds  
; STREET: 1155 Avenue of the Americas  
; CITY: New York  
; STATE: New York  
; COUNTRY: U.S.A.  
; ZIP: 10036-2711  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patentin Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/847,010  
; FILING DATE: 01-JUN-1992  
; CLASSIFICATION: 435  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Jones III, Harry C  
; REGISTRATION NUMBER: 20,280  
; REFERENCE/DOCKET NUMBER: 6530-010  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (212) 790-9090  
; TELEFAX: (212) 869-9741/8864  
; TELEX: 66141 PENNITE  
; INFORMATION FOR SEQ ID NO: 21:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 672 base pairs  
; TYPE: nucleic acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: CDNA

HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: birch (Betula sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN  
US-07-847-010-21

Query Match 98.0%; Score 470.4; DB 2; Length 672;  
Best Local Similarity 98.8%; Pred. No. 3.2e-143;  
Matches 474; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

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DB 184 GCGTTCCTTTCAAGTACGTGAAGAGACAGAGTTGATGAGTGGACCAACAACCTTCAA 243  
QY 241 tacaattacagcgtgacgagggcggtcccatagagcgacacattgagaagatctccaa 300  
DB 244 TACAATTACAGCGGTGATCGAGGCGGTCCCATAGGCGACACATTGGAAGATCTCCAA 303  
QY 301 gggataaagatgtgagcaacccctgtatgagtgatcattcttgaagatcagaacaagtac 360  
DB 304 GAGATTAAGATAGTGGCAACCCCTGATGAGATGATCCATTGAAGATCAGCAACAACTAC 363  
QY 361 cacacaaagtgagcattgagtgagagcgagtgagtgagtgagtgagtgagtgagtgag 420  
DB 364 CACACCAAAGGTGACCATGATGAGGAGACAGACAGGTTAAGCAAGTAAAGAAATGGCG 423  
QY 421 gagacactttgagggcggtgagagctacctcttgagacactcgaatgctcctaactaa 480  
DB 424 GAGACACTTTTGAAGGCGCTTGAAGACTACTCTTGACACACTCCGATCGCTCAACTAA 483

## RESULT 2

US-07-847-010-22  
; Sequence 22, Application US/07847010  
; Patent No. 5693495

## ; GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hofmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Schneider, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ. ID NO: 22:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 480 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: cDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: birch (Betula sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN  
US-07-847-010-22

Query Match 97.4%; Score 467.4; DB 2; Length 480;  
Best Local Similarity 98.7%; Pred. No. 2.5e-142;  
Matches 471; Conservative 0; Mismatches 6; Indels 0; Gaps 0;

QY 1 ggtgtttaaataatagactgagacacacactctgtatcccaagagctcagctgttcaag 60  
DB 4 GGTGTTTCAATTAGCAAGTGAACACACTCTGTATCCAGAGAGCTCGACTTTCAAG 63  
QY 61 gcccttaacctgtagtgagataacctcttccaaaggtgcaccccaagccatagcagt 120  
DB 64 GCTTTATCTTGATGCGCATATCTCTTCCAAAGGTTGACCCCAAGCCATTAGCAGT 123  
QY 121 gttgaaacattgaaagaatgtagggccttgagacattagaagatcagcttccgaa 180  
DB 124 GTTGAAGAACTGGAAGAAATGAGGCGCTGGAACATTGAAGATCAGCTTCCGAA 183  
QY 181 ggcctcccttcaagtaagtgagacagagttgatgagtgagtgagtgagtgagtgagtgag 240  
DB 184 GCGTTCCTTTCAAGTACGTGAAGAGACAGAGTTGATGAGTGGACCAACAACCTTCAA 243  
QY 241 tacaattacagcgtgacgagggcggtcccatagagcgacacattgagaagatctccaa 300  
DB 244 TACAATTACAGCGGTGATCGAGGCGGTCCCATAGGCGACACATTGGAAGATCTTCCAA 303  
QY 301 gagataaagatgtaggaaccccttgtagagtgatcattcttgaagatcagaacaagtac 360  
DB 304 GAGATTAAGATAGTGGCAACCCCTGATGAGATGATCCATTGAAGATCAGCAACATGAC 363  
QY 361 cacacaaagtgagcattgagtgagagcgagtgagtgagtgagtgagtgagtgagtgagtgag 420  
DB 364 CACACCAAAGGTGACCATGATGAGGAGACAGACAGGTTAAGCAAGTAAAGAAATGGCG 423  
QY 421 gagacactttgagggcggtgagagctacctcttgagacactcgaatgctcctaactaa 477  
DB 424 GAGACACTTTTGAAGGCGCTTGAAGACTACTCTTGACACACTCCGATCGCTCAACTAA 480

## RESULT 3

US-07-847-010-1  
; Sequence 1, Application US/07847010  
; Patent No. 5693495  
; GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikerstorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
NUMBER OF INVENTIONS: Applications thereof  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 665 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: CDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Alder (Alnus sp.)  
US-07-847-010-1

Query Match 78.0%; Score 374.4; DB 2; Length 665;  
Best Local Similarity 86.2%; Pred. No. 4.3e-112;  
Matches 414; Conservative 0; Mismatches 66; Indels 0; Gaps 0;  
QY 1 ggtgtgttaataatgagctgagaccactctgttatacccaagcagctcgactgttcaag 60  
DB 4 GGGTGTTCAATTAACGAACGGAACCCCTCCGTATCCAGCGGCTCGGTGTTCAAG 63  
QY 61 gccctatcctgagtgaggaatcctcttccaaaggtgaccccaacccatgaact 120  
DB 64 GCTTTATCTGATGAGCGCATTAAGCTCTTCCAAAGTTGCACCTTAACTTTACCACT 123  
QY 121 gttgaacaatgaaagaaatgagagcctggaacattaaagaagaatcagcttccgaa 180  
DB 124 GTTGAGAACATGAAAGAAATGAGAGGCTCGAACCATCAAGAAGATCACTTCCGAA 183  
QY 181 ggcctcccttcaagtacgtgaagcagaagtgtgatgagtgagaccacaacttcaaa 240  
DB 184 GGCAGCCCTTTAAAGTACGTAAGGAGAGGTTGATGAGGTGATCGCTAAACTTCAAA 243  
QY 241 tacaattacagcgtgacgagcggtcccatagagcacacttgagaagaatctccaac 300  
||||| | ||||||| ||| || | ||||||| || ||||||| ||| |||

DB 244 TACAGCTTACGCTGATTCAGAGGCTGGTGGCGGACCACTGAGAGAAGCTGTGAAC 303  
QY 301 gagataaagatagtgacaacccttgatgagatccatcttgaagaatcagacaagtac 360  
DB 304 GAGATCAAGATAGTGGCACCCCTTGATGAGATTCATCTTGAAGATCAAGCAAGTTTC 363  
QY 361 cacaccaaggtgacatgagtgaagcagagcaggttaagaagcaatgaatgggc 420  
DB 364 CACACCAAGGCGACCATGATTAATGACAGACGATTAAAGTTGAAAAAGAGGCC 423  
QY 421 gagacacttggagcgcttgagagctacctcttgacactccgatgcttaactaa 480  
DB 424 GTGGACTTCTCAAGCCCTTGAGACTACCTTGGCACACTCTGATGCTTCAACTTA 483  
||||| | ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

RESULT 4  
US-07-847-010-2  
Sequence 2, Application US/07847010  
Patent No. 5693495  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikerstorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
NUMBER OF INVENTIONS: Applications thereof  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 480 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: CDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: Alder (Alnus sp.)  
US-07-847-010-2  
Query Match 77.4%; Score 371.4; DB 2; Length 480;  
Best Local Similarity 86.2%; Pred. No. 3.4e-111;

	MATCHES	411:	Conservative	0;	Mismatches	66;	Indels	0;	Gaps	0;
OY	1	ggttgtttaaataagaagctatgaaccacctgttatccagcagtcatgttc	aag	60						
Dd	4	GGGTGTTTCAATTACGAACCGGAACCCTCCGTTATGCCAGCGGCTTC	AAG	63						
OY	61	gcctttacattgatggcgataaacctccttccaaggcttgcaaccccacattg	cact	120						
Dd	64	GCCTTTATCCTTGATGGCCATTAAGCTCCTTCCAAAGGTTGCACTGAACTGT	TACACT	123						
OY	121	gttgaanaacatttgaagaaatgtagggccttggaaccattaagaagatcacg	cttccccga	180						
Dd	124	GTTGGAACAATTGAAGAATAATGGAGGCGCTGGAACCATCAAGAAGATCAC	CTTCCCAGA	183						
OY	181	ggcctcccttcaaagtaeagtgaagacagagttgatbaggtgycacacaac	tcta	240						
Dd	184	GGCACCCCCCTTTAAATACGTAAAGGAGAGGGTTGATGATGATCGCTAAC	CTTCANA	243						
OY	241	tacaatticagsgtgtatcgtagggcggtcccataagcgsaacatttgagaag	atctccaac	300						
Dd	244	TACACCTTCAGCGTATCCAGGGGTGGTGCCGTGGGCGACGACTGGAGAA	GGTCTGTAA	303						
OY	301	gaataaaaagatgttgcaacccccctgatatgaggatccatctlaagaatc	gaacaagtac	360						
Dd	304	GAGATCAAGATATGTGGCAGCCCTCATGAGGATCATTTGAAGATCAGCAA	AGATTIC	363						
OY	361	cacaccaaaagtgcacatyaagtggaagcagaacaggttaagcgaatgaaga	aatlygnc	420						
Dd	364	CACACCAAAAGGCGACCATAGATTAATGACAGACAGATTAAATGAAA	AAAAAGCC	423						
OY	421	gagacactttgaggcgctgaagagctaacctcttgscacatccgatcc	tacaac	477						
Dd	424	GTGGACTTCTCAAGGCCCTTAGAGACTACCTTGTGGCACACTGTGATGCT	TACAAC	480						
RESULT 5 US-07-847-010-15 Sequence 15, Application US/07847010 Patent No. 3693495 GENERAL INFORMATION: APPLICANT: Breiteneder, Helmo APPLICANT: Reikertstorfer, Arnold APPLICANT: Valente, Rudolf APPLICANT: Hofmann - Sommergruber, Karin APPLICANT: Kraft, Dietrich APPLICANT: Rumpold, Helmut APPLICANT: Scheiner, Otto APPLICANT: Ebner, Christof APPLICANT: Ferreira, Fatima TITLE OF INVENTION: Allergens of Alder Pollen and NUMBER OF SEQUENCES: 23 CORRESPONDENCE ADDRESS: ADDRESSEE: Pennle & Edmonds STREET: 1155 Avenue of the Americas CITY: New York STATE: New York COUNTRY: U.S.A. ZIP: 10036-2711 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/07/847,010 FILING DATE: 01-JUN-1992 CLASSIFICATION: A43 ATTORNEY/AGENT INFORMATION: NAME: Jones III, Harry C REGISTRATION NUMBER: 20,280 REFERENCE/DOCKET NUMBER: 6530-010										

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TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 655 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
ORIGINAL SOURCE:
ORGANISM: hazel (Corylus sp.)
IMMEDIATE SOURCE:
LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN
US-07-847-010-15

Query Match      73.7%; Score 353.6; DB 2; Length 655;
Best Local Similarity 83.5%; Pred. NO. 2.4e-105;
Matches 401; Conservative 0; Mismatches 79; Indels 0; Gaps 0.

QY   1 ggttgcttaattatgagactggagaccaccttgttatcccaagaagtgcagtgttcaaag 60
Db   4 GGTTTTTTCATTTACGAGGGCTGAGACCACCTCGTTATCCCTGGCGCAAGGCTGTTCAAAG 63
QY   61 gccttacccctgatgagcgataccctccttcacaagggttcacccaagccattagagat 120
Db   64 TCCATATCTCTTATATGGCGATTAGCTCATGCCAAGAAGGTTGCACCTCAAGCATTTACGAC 123
QY   121 gtgaagaacattgaaggaaatggagggccttggaaccattagaagaagcttcgccga 180
Db   124 GTTGAAAACCTTAGAAGGAATGGAGGGCCTGGAACCATCAAGAATAATCACCTTTGGCGAA 183
QY   181 ggscctcccttaagtagcgtgaagagacagatgtatgtatgggtgtgagccacaaaacttcaa 240
Db   184 GGGCGCCGTTTACAGTAGCTGAAGGAGAGGGTTGATGTGAGGTTGACAACACAACTTCACA 243
QY   241 tacattcacagcgtgacgcagagggcggtcccatagcgacacatcggagaagatctccaac 300
Db   244 TACAGCTACACCGCTATTCGAGGGTATGTCTCGSGGTGACAAGCTGGAGAAGGCTTGCCAC 303
QY   301 gagataagaatgtggcaaccccctgatgtgagatccatctltgaagatcagcaacaagtlac 360
Db   304 GAGCTGAAGATAGTGCGACACCCCTGGTGAGAGATTCATCTTGAAAGATCACGACAGATTTC 363
QY   361 cacaccaagaagtaccatgaagtgtgaagcagagcaggtgtlaagcgaagttaaagaatggagc 420
Db   364 CACGCCAAGAGTATACCATGAGATTATATGAGAGGAGTAAGAGGAGTGGCCAAGAAATGGCC 423
QY   421 gagaacattttggagggcgttgaagagctaacctcttggacaactcaga tgcctcaactaa 480
Db   424 GAGAACTTTTAAGGGCGGTTGAGACTCTACTTATTGGCACACTCTGCTGATATACACTAA 483

RESULT        6
US-07-847-010-16
Sequence 16, Application US/07847010
Patent No. 5693495
GENERAL INFORMATION:
APPLICANT: Breiteneder, Heimo
APPLICANT: Reikertstorfer, Arnold
APPLICANT: Valenta, Rudolf
APPLICANT: Hofmann - Sommerhuber, Karin
APPLICANT: Breiteneder, Michael
APPLICANT: Kraft, Dietrich
APPLICANT: Rumpold, Helmut
APPLICANT: Scheiner, Otto
APPLICANT: Ebner, Christof
APPLICANT: Ferreira, Fatima
TITLE OF INVENTION: Allergens of Alder Pollen and

```

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; TITLE OF INVENTION: Applications Thereof
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Pennie & Edmonds
; STREET: 1155 Avenue of the Americas
; CITY: New York
; STATE: New York
; COUNTRY: U.S.A.
; ZIP: 10036-2711
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/847,010
; FILING DATE: 01-JUN-1992
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Jones III, Harry C
; REGISTRATION NUMBER: 20,280
; REFERENCE/DOCKET NUMBER: 6530-010
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 790-9090
; TELEFAX: (212) 869-9741/8864
; TELEX: 66141 PENNIE
; INFORMATION FOR SEQ ID NO: 16:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 480 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: hazel (Corylus sp.)
; IMMEDIATE SOURCE:
; LIBRARY: POLLEN FROM ALLERCON AB, ENGELHOLM, SWEDEN
US-07-847-010-16

Query Match      73.0%; Score 350.6; DB 2; Length 480;
Best Local Similarity 83.4%; Pred. No. 1.9e-104;
Matches 398; Conservative 0; Mismatches 79; Indels 0; Gaps 0;

QY 1 ggtgtttaataatagagactgagacacacctgttaccacagctgagcttcaag 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 4 GGTGTTTCAATTACGAGGCGTAGAGACCACTCGGTATCCCTGGCGAAGCGTTCAG 63

QY 61 gacctatccttgatgagcgaataacctcttccaaaggtgaccccccaagcattagcatt 120
    ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 64 TCCTATGTCCTGATGCGATGCGATGATCCCAAGGTTCCACCTCAAGCTATTACAGC 123

QY 121 gttgaaacacatgaagaaatgagagcctggaacattgaagaagtcaagctcccgaa 180
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 124 GTTGAAGAAAGCTGAAGAAATGAGGGCTGGAACCAATCAAGAAATACCTTTGGGAA 183

QY 181 ggcctcccttcaagtaacgtgaagacaagattgatgaggtgagccacacaactcaaa 240
    ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 184 GGCAGCGCTTACAAGTACGTGAAGAGAGGCTTGATGAGTTGACACAACAACAACTTACA 243

QY 241 tacaattacagcgtgatcgagggcggtcccatgagcgacacattgagaagattccaac 300
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 244 TACAGGTACACCTGATCGAGGGTGAATGTCCTGCTGACAAAGCTGGAGAGCTGCGCAC 303

QY 301 gagataaagatgagcaaacctgatgagagatccatcttgaagattcaagaagaattac 360
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 304 GAGCTGAAGATAGTGGAGCGCCCTGGTGGAGATCCATCTTGAAGATCACACAGATTTG 363

QY 361 cacaccaaaggtgacacatgaggtgaagcagagcagggtlaaagcaagtaagaatatggc 420
    ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 364 CAGGCCAAAGGTGACCATGATTAATGACAGAGAGATGAAGGTTGCCAAGAAATGGCC 423
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QY 421 gagacactttagggcgcttgagagactcttcttgacacactlccagatgcttaaac 477
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 424 GAGAAACTTTAAAGGGCGGTGAGAGCTACTTATGCGACACTCTGCTGATATACAC 480

RESULT 7
US-07-847-010-12
; Sequence 12, Application US/07847010
; Patent No. 5693495
; GENERAL INFORMATION:
; APPLICANT: Breiteneder, Helmo
; APPLICANT: Reikerstorfer, Arnold
; APPLICANT: Valenta, Rudolf
; APPLICANT: Hoffmann - Sommergruber, Karin
; APPLICANT: Breitenbach, Michael
; APPLICANT: Kraft, Dietrich
; APPLICANT: Rumpold, Helmut
; APPLICANT: Scheiner, Otto
; APPLICANT: Ebner, Christof
; APPLICANT: Ferreira, Fatima
; TITLE OF INVENTION: Allergens of Alder Pollen and
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Pennie & Edmonds
; STREET: 1155 Avenue of the Americas
; CITY: New York
; STATE: New York
; COUNTRY: U.S.A.
; ZIP: 10036-2711
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/847,010
; FILING DATE: 01-JUN-1992
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Jones III, Harry C
; REGISTRATION NUMBER: 20,280
; REFERENCE/DOCKET NUMBER: 6530-010
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 790-9090
; TELEFAX: (212) 869-9741/8864
; TELEX: 66141 PENNIE
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 742 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: hazel (Corylus sp.)
; IMMEDIATE SOURCE:
; LIBRARY: POLLEN FROM ALLERCON AB, ENGELHOLM, SWEDEN
US-07-847-010-12

Query Match      72.7%; Score 348.8; DB 2; Length 742;
Best Local Similarity 82.9%; Pred. No. 9.1e-104;
Matches 398; Conservative 0; Mismatches 82; Indels 0; Gaps 0;

QY 1 ggtgtttaataatagagactgagacacacctgttaccacagctgagcttcaag 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 4 GGTGTTTCAATTACGAGGTTGAGACTCCCTCGGTATCCCAAGCGCAAGCGTTCAG 63

QY 61 gacctatccttgatgagcgaataacctcttccaaaggtgaccccccaagcattagcatt 120
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Db 64 TCCATGTCCTGATGCGCATAGCTCATCCCAAGGTCACCTCAAGCTATTACGAC 123
Qy 121 gttgaacaattgaagaaatggaagggccctggaacacattagaagatcagcttccgaa 180
Db 124 gttgaagaattgaagaaatggaagggccctggaacacattagaagatcagcttccgaa 183
Qy 181 ggcctcccttcaagtaagtggaagagagagatgagtgagtgagacacacacacacacac 240
Db 184 GCGAGCGCTTACAGTACGTGAGAGAGAGAGAGGCTGATGAGGTGACACACAACTTTCAA 243
Qy 241 tacaattacagcgtgacgagggcggtcccaatagggcacacattggaagatctccaac 300
Db 244 TATAGCTACACCTGATCGAGGGTGATGCTCGGTGACAAAGTGAGAGAGGCTGACAGC 303
Qy 301 gagataaagatagtggaacccctgtagagagatccatcttgaagatcagcaaaatgac 360
Db 304 GAGCTGAAGTATGTCAGCGCCCTGCTGAGAGATCCATCTTGAAGATCAGCAGCAAGTTC 363
Qy 361 cacacaaagtgacacatgagtggaagcagagcaggttaagcaagtaagaatgggc 420
Db 364 CACGCCAAAGCGACCATGATTAATGACAGAGAGATGAAGGTCGCAAAAGAAATGGCC 423
Qy 421 gagacactttgagggcggttgagagctacactcttgacacactcgaatgcttacaactaa 480
Db 424 GAGAACTTTTAAGGCGGTTGAGACCTACTATTGSCACACTCTGCTGATACACTAA 483
```

RESULT 8  
US-07-847-010-13  
Sequence 13, Application US/07847010  
Patent No. 5693495

## GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valencia, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Penile & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435

## ATTORNEY/AGENT INFORMATION:

NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE

INFORMATION FOR SEQ ID NO: 13:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 480 base pairs

TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: cDNA  
HYPOTHEetical: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: hazel (Corylus sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLENGON AB, ENGELHOLM, SWEDEN  
US-07-847-010-13

Query Match 72.0%; Score 345.8; DB 2; Length 480;  
Best Local Similarity 82.8%; Pred. No. 6,8e-103;  
Matches 395; Conservative 0; Mismatches 82; Indels 0; Gaps 0;

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Qy 1 ggtgtttaattaatgaagtagagaccactctgtatcccaagcagctgactgttcaag 60
Db 4 GGTGTTTCAATATACGAGGTTGAGACTCCCTCGTTATCCACGCGCAAGGCTGTTCAAG 63
Qy 61 gctttatccttgatgagcagataactcttccaaaggttgaccccaagcattagcagt 120
Db 64 TCCATGTCCTTGTGATGCGATTAAGCTCATCCAAAGGTTGACACTCAAGCTATTACAGC 123
Qy 121 gttgaacaattgaagaaatggaagggccctggaacacattagaagatcagcttccgaa 180
Db 124 gttgaagaattgaagaaatggaagggccctggaacacattagaagatcagcttccgaa 183
Qy 181 ggcctcccttcaagtaagtggaagagagatgagtgagtgagacacacacacacacac 240
Db 184 GCGAGCGCTTACAGTACGTGAGAGAGAGAGAGGCTGATGAGGTGACACACAACTTTCAA 243
Qy 241 tacaattacagcgtgacgagggcggtcccaatagggcacacattggaagatctccaac 300
Db 244 TATAGCTACACCTGATCGAGGGTGATGCTCGGTGACAAAGTGAGAGAGGCTGACAGC 303
Qy 301 gagataaagatagtggaacccctgtagagagatccatcttgaagatcagcaaaatgac 360
Db 304 GAGCTGAAGTATGTCAGCGCCCTGCTGAGAGATCCATCTTGAAGATCAGCAGCAAGTTC 363
Qy 361 cacacaaagtgacacatgagtggaagcagagcaggttaagcaagtaagaatgggc 420
Db 364 CACGCCAAAGCGACCATGATTAATGACAGAGAGATGAAGGTCGCAAAAGAAATGGCC 423
Qy 421 gagacactttgagggcggttgagagctacactcttgacacactcgaatgcttacaactaa 480
Db 424 GAGAACTTTTAAGGCGGTTGAGACCTACTATTGSCACACTCTGCTGATACACTAA 483
```

RESULT 9  
US-07-847-010-9  
Sequence 9, Application US/07847010  
Patent No. 5693495

## GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valencia, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Penile & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York



COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 9:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 619 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: cDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:  
ORGANISM: hazel (Corylus sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN  
US-07-847-010-9

Query Match 72.0%; Score 345.6; DB 2; Length 619;

Best Local Similarity 82.5%; Pred. No. 9,1e-103; Matches 396; Conservative 0; Mismatches 84; Indels 0; Gaps 0;

QY 1 ggtgtgtaataatgaagactgagacacactgtatccacagcagctgactgttcaag 60  
DB 4 GGTGTTTCAATACGAGGTTGAGACTCCCTCGTTATCCCTCGGCAAGGCTTCAAG 63  
QY 61 gccttacccttgatgagcgaatacctcttccaaaggtgaccccaagcattagagt 120  
DB 64 TCCTATGTCCTTATGCGATGAGCTCATCCCAAGGTTGCACCTCAAGCTATTACAGC 123  
QY 121 gtgtaaacattgaagaaatgagggcctggaacattagaagatcaagcttccgaa 180  
DB 124 GTTGAAGAACTTGAGGAATGAGAGGCTGGAACCATCAAGATATACCTTTGGCGAA 183  
QY 181 ggcctcccttcaagtaagtgaaagacagatgtatgaggtggacacacaaacttcaa 240  
DB 184 GCGAGCGCTTACAAATGACGTAAGAGAGAGGTTGATGAGGTTGACACACAACTTACA 243  
QY 241 tacaattacagcgatgcgagggcggtcccatatggacacattggaagaagattccaac 300  
DB 244 TACAGCTACACCGTGAATGAGGATGATGCTCGGTGACAGCTGGAAGGTTCTGCCAC 303  
QY 301 gataataagatggaacccctgagtgagatccatcttgaagatcaagaacaaatgac 360  
DB 304 GACCTGAAGATATGAGCAGCCCTGTGTGAGAGATCCATCTTGAAGATCAGCAGCAAGTTC 363  
QY 361 cacacacaaagtgacattgagtgatgaagcagagcaggttaaggcaagtaagaatgggc 420  
DB 364 CACGCCAAAGGACCATGAGATTAATGACAGAGAGATGAAGGTTGCCAAGAAATGGCA 423  
QY 421 gagaacatttgagggcggtgagagatcactcttggcaaacctcgatgcttacaataa 480  
DB 424 GAGAACTTTTAAGGGGCTTGAAGACCTATCTATGTCACACTCTGCTGAATACACTTAA 483

RESULT 10

US-07-847-010-18  
Sequence 18, Application US/07847010  
Patent No. 5693495  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Penlie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435

ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 18:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 860 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: cDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO

ORIGINAL SOURCE:  
ORGANISM: hazel (Corylus sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN  
US-07-847-010-18

Query Match 71.7%; Score 344; DB 2; Length 860;

Best Local Similarity 82.3%; Pred. No. 3,6e-102; Matches 395; Conservative 0; Mismatches 85; Indels 0; Gaps 0;

QY 1 ggtgtgtaataatgaagactgagacacactgtatccacagcagctgactgttcaag 60  
DB 4 GGTGTTTCAATACGAGGTTGAGAGCCCTCGTTATCTCAAGCGCAAGGCTTCAAG 63  
QY 61 gccttacccttgatgagcgaatacctcttccaaaggtgaccccaagcattagagt 120  
DB 64 TCCTATGTCCTTATGCGATGAGCTCATCCCAAGGTTGCACCTCAAGCTATTACAGC 123  
QY 121 gtgtaaacattgaagaaatgagggcctggaacattagaagatcaagcttccgaa 180  
DB 124 GTTGAAGAACTTGAGGAATGAGAGGCTGGAACCATCAAGATATACCTTTGGCGAA 183

QY 181 ggcctcccttcgaagtcgtaagagagagtgatgagtgagccacacaaacttcaaa 240  
DB 184 GGCAGCGGTTACAAAGTACGTGAAGAGAGGGTTGATGAGGTTGACACAACTTCAA 243  
QY 241 tacaattacagcgatgacgagggcggtcccatagggcacacattggagaagatctccaac 300  
DB 244 TATAGCTACACCGGATGAGGGGATGATCTCTGGGTGACAACTGGAAGTCTGCAGC 303  
QY 301 gagaataagatagtggaaccccgatgagggatcctcttgaaatcagaaagaaagac 360  
DB 304 GAGCTGAAGTATGAGGAGCCCTGCTGGGATCACCCTTGAAATGACAGCAAGTTC 363  
QY 361 cacaccaaagtgacacatgagtgaggaagcagagcaggttaagcgaagttaaagaatggcc 420  
DB 364 CACGCCAAAGGTGACCATGATGATTAATGACAGAGATGAAGGGTGCCAAAGAAATGGCC 423  
QY 421 gagaacatttgagggcggttgagagctacaccttgacacacccgagtcctcaactaa 480  
DB 424 GAGAAACTTTTAAGGGCGGTGAGACCTACTATTGGCACACTCTGCTGAATACACTAA 483

RESULT 11  
US-07-847-010-10  
Sequence 10, Application US/07847010  
Patent No. 5693495

## GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847, 010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 480 base pairs  
TYPE: nucleic acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: cDNA  
HYPOTHETICAL: NO  
ANTI-SENSE: NO  
ORIGINAL SOURCE:

ORGANISM: hazel (Corylus sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLENGON AB, ENGELHOLM, SWEDEN  
US-07-847-010-10

Query Match 71.4%; Score 342.6; DB 2; Length 480;  
Best Local Similarity 82.4%; Pred. No. 7.4e-102;  
Matches 393; Conservative 0; Mismatches 84; Indels 0; Gaps 0;

QY 1 ggtgtttaattatgagtagacacactctgtatcccaagagctgacgttcaag 60  
DB 4 GGTGTTTCAATTAAGAGTTGAGATCTCCGTTATCCCTCGGCAAGGCTTTCAAG 63  
QY 61 ggccttacccttgatgaggaataacctcttcccaaggcttgacccaagcatgaag 120  
DB 64 TCTATGTCCTTGAATGCGATTAACCTATCCCAAGGTTACCTCAAGCTATTACCA 123  
QY 121 gtgaaacattgaaagaaatgagggcctggaacattagaagatcagcttccgaa 180  
DB 124 GTTGAANAAGTTGAAGGAATGAGGGCTGGAACCATCAAGAAATACCTTTGGCGAA 183  
QY 181 ggcctcccttcaagtcgtaagagagagtgatgagtgagcacaacaaactcaaa 240  
DB 184 GGCAGCGGTTACAAAGTACGTGAAGAGAGGGTTGATGAGTTGACAACTTCA 243  
QY 241 tacaattacagcgatgacgagggcggtcccatagggcacacattggagaagatctccaac 300  
DB 244 TACAGCTACACCGGATGAGGGGATGATCTCTGGGTGACAACTGGAAGGTTCCAC 303  
QY 301 gagaataagatgagcaaccccgatgagggatccatcttgaaatcagcaacaaagtac 360  
DB 304 GAGCTGAAGTATGAGGAGCCCTGCTGGGATCACCCTTGAAATGACAGCAAGTTC 363  
QY 361 cacaccaaagtgacacatgagtgaggaagcagagcaggttaagcgaagttaaagaatggcc 420  
DB 364 CACGCCAAAGGTGACCATGATGATTAATGACAGAGATGAAGGGTGCCAAAGAAATGGCC 423  
QY 421 gagaacatttgagggcggttgagagctacaccttgacacacccgagtcctcaactaa 480  
DB 424 GAGAAACTTTTAAGGGCGGTGAGACCTACTATTGGCACACTCTGCTGAATACACTAA 480

## RESULT 12

US-07-847-010-19  
Sequence 19, Application US/07847010  
Patent No. 5693495

## GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikertorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Scheiner, Otto  
APPLICANT: Ebner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Pennie & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25





GenCore version 4.5  
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 11, 2000, 09:41:43 ; Search time 508.71 Seconds  
(without alignments)  
19.835 Million cell updates/sec

Title: US-09-270-910-37

Perfect score: 819  
Sequence: 1 GVFNYETETTSVIPARLRK.....GETLLRNVESYLHAHSDAYN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Maximum Match 0%  
Listing first 45 summaries

Database :  
1: PIR65:\*  
2: pir1:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	815	99.5	160	2	S05376	major pollen aller
2	795	97.1	160	2	G53699	major pollen aller
3	790	96.5	160	2	D55699	major pollen aller
4	789	96.3	160	2	E55699	major pollen aller
5	787	96.1	160	2	C55699	major pollen aller
6	786	96.0	160	2	F55699	major pollen aller
7	780	95.2	160	2	I55699	major pollen aller
8	740	90.4	160	2	A57427	major pollen aller
9	734	89.6	160	2	A55699	major pollen aller
10	730	89.1	160	2	H55699	major pollen aller
11	722	88.2	160	2	B55699	major pollen aller
12	707	86.3	160	2	S47250	gene 1-Sc1 protein
13	703	85.8	159	2	S47251	gene 1-Sc2 protein
14	621	75.8	160	2	S30054	major allergen Cor
15	621	75.8	160	2	S30055	major allergen Cor
16	615	75.1	160	2	S30053	major allergen Cor
17	612	74.7	160	2	S47249	gene 1-Sc3 protein
18	601	73.4	160	2	S30056	major allergen Cor
19	545	66.5	160	2	T17005	major allergen Mal
20	534	65.2	160	2	T17006	major allergen Mal
21	530	64.7	160	2	T17007	major allergen Mal
22	505.5	61.7	159	2	T17004	major allergen Mal
23	465.5	56.8	153	2	JC4276	Mal1 protein - ap
24	447.5	54.6	159	2	S51119	pathogenesis-relat
25	420.5	51.3	157	2	T09659	stress response ge
26	415.5	50.7	157	2	T09526	pathogenesis-relat
27	386	47.1	158	2	T06527	pathogenesis-relat
28	382	46.6	158	2	S42650	hypothetical prote
29	381	46.5	158	2	S20518	

30	374.5	45.7	159	2	T06768	disease resistance
31	371	45.3	158	2	S47140	pathogenesis-relat
32	370	45.2	156	1	SNFB1	pathogenesis-relat
33	367	44.8	155	2	S52664	hypothetical prote
34	367	44.8	158	2	S20517	pathogenesis-relat
35	362.5	44.3	155	1	SNFB2	pathogenesis-relat
36	362.5	44.3	155	2	T11670	pathogenesis-relat
37	342.5	41.8	155	2	S35162	STH-21 protein - p
38	342.5	41.8	155	2	S35161	STH-2 protein - po
39	332.5	40.6	157	2	S42649	pathogenesis-relat
40	330.5	40.4	158	2	S12568	pathogenesis-relat
41	317	38.7	178	2	T07403	TSI-1 protein - to
42	316	38.6	155	2	S04552	pathogenesis-relat
43	312	38.1	155	2	S04553	pathogenesis-relat
44	310.5	37.9	154	2	S63984	major allergen Api
45	302	36.9	155	2	T14918	pathogenesis-relat

## ALIGNMENTS

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RESULT
1
S05376
major pollen allergen Bet v 1 - European white birch
C:Species: Betula pendula (European white birch)
C:Date: 31-Mar-1990 #sequence-revision 31-Mar-1990 #ext-change 04-Feb-2000
C:Accession: S05376; J04834; B53288
R:Breiteneder, H.; Pettenburger, K.; Bito, A.; Valenta, R.; Kraft, D.; Rumpold, H.; S
EMBO J. 8, 1935-1938, 1989
A:Title: The gene coding for the major birch pollen allergen Betv1, is highly homolog
A:Reference number: S05376; MUID:9005395
A:Accession: S05376
A:Molecule type: mRNA
A:Residues: 1-160 <BRE>
A:Cross-references: EMBL:X15877; NID:g17937; PIDN:CAA33887.1; PID:g17938
R:Kungl, A.J.; Susani, M.; Lindeman, A.; Machiusi, M.; Visser, A.J.W.G.; Scheiner, O.
Biochem. Biophys. Res. Commun. 223, 187-192, 1996
A:Title: Evidence for an alpha helical T cell epitope in the C-terminus of the main b
A:Reference number: J04834; MUID:96254050
A:Accession: J04834
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-160 <KUN>
R:Ipse, H.; Hansen, O.C.
Mol. Immunol. 28, 1279-1288, 1991
A:Title: The NH2-terminal amino acid sequence of the immunochemically partial identic
s) Car b I and oak (Quercus alba) Que a I pollens.
A:Reference number: A53288; MUID:92072607
A:Accession: B53288
A:Status: preliminary
A:Molecule type: protein
A:Residues: 2-39, 'XX', 42-44 <IPS>
A:Cross-references: PID:g239734; PIDN:AAB20452.1
A:Experimental source: pollen
A:Note: sequence extracted from NCBI backbone (NCBIP:68408)
C:Comment: This protein induces IgE synthesis by B cells in a T cell dependent mann
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
F:2-160/Product: major pollen allergen Bet v 1 #status experimental <MAT>

Query Match 99.5%; Score 815; DB 2; Length 160;
Best Local Similarity 99.4%; Pred. No. 2.2e-64;
Matches 158; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GVFNYETETTSVIPARLRKAFITLDGNTLFPKVAPOAIVSEVIEGNGGPGTIRKISFPE 60
DB 2 GVFNYETETTSVIPARLRKAFITLDGNTLFPKVAPOAIVSEVIEGNGGPGTIRKISFPE 61
QY 61 GLPFKYYKRVDEVDHTNFKYNSVIEGPIGDTLEKISNEIKYVTPDGGSLTKISNKY 120
DB 62 GFPEFKYKRVDEVDHTNFKYNSVIEGPIGDTLEKISNEIKYVTPDGGSLTKISNKY 121
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```

Oy      121  HTKGDHEVKAQVNAKSEMGETLLRAVESYLLAHSDAYN 159
          |||||||
Db      122  HTKGDHEVKAQVNAKSEMGETLLRAVESYLLAHSDAYN 160

RESULT  2
G55699
major pollen allergen Bet v 1j - European white birch
C:Species: Betula pendula (European white birch)
C:Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 20-Aug-1999
C:Accession: G55699; S41902
R:Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner,
  ch, M.
J. Biol. Chem. 270, 2607-2613, 1995
A:Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chroma
A:Reference number: A55699; MUID:95153322
A:Accession: G55699
A:Molecule type: mRNA
A:Residues: 1-160 <SMO>
A:Cross-references: EMBL:X77271; NID:g452739; PIDN:CA54487.1; PID:g452740
A:Note: the source is designated as Betula verrucosa
C:Superfamily: pathogenesis-related protein
C:Keywords: pollen
;2-160/Product: major pollen allergen Bet v 1j #status experimental <MAT>

```

Query Match	97.18;	Score 795;	DB 2;	Length 160;
Best Local Similarity	95.68;	Pred. No. 1.2e-62;		
Matches 152; Conservative	5;	Mismatches 2;	Indels 0;	Gaps 0;

Oy	1	GAVNYEETSVIPAAARFKAFLIDGDNDLPEVAPOAISVENIEBNGGGTITKTSI	Sepe	60
Dd	2	GAVNYETEASVIPAARLFKAFLIDGDNLFPKVAPQAISVENIEBNGGGTITKTSI	Sepe	61
Oy	61	GLPFKYVKDWDVEDPHNFKNYSYIEGPGIGDTLEKISNEKIYATPQGGSLTKLSNKY		120
Dd	62	GFEPFKYVKDWDVEDPHNFKYSYIYIEGPGVGDTLEKISNEKIYATPMGGSTLKTNKY		121
Oy	121	HTRGDHEVKAQYVASKEMGETLLRAVESYLLASHSDAYN		159
Dd	122	HTRGDHEVKAQIKASKEMGETLLRAVESYLLASHSDAYN		160

RESULT 3  
D55699  
major pollen allergen Bet v 1e - European white birch  
C/Species: Betula pendula (European white birch)  
C/Date: 01-Dec-1995 #sequence\_revision 20-Aug-1999  
C/Accession: D55699; S41899  
R:Swobode, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Scheiner, Ch., M.  
J. Biol. Chem. 270, 2607-2613, 1995  
A/Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chromatography-mass spectrometry  
A/Reference number: A55699; MUID:9515322  
A/Accession: D55699  
A/Molecule type: mRNA  
A/Residues: 1-160 <SMO>  
A/Cross-references: EMBL:X77267; NID:9452733; PIDN:CAA54483.1; PID:9452734  
A/Note: the source is designated as Betula verrucosa  
C/Superfamily: pathogenesis-related protein  
C/Keywords: pollen  
?:2-160/Product: major pollen allergen Bet v 1e #status experimental <MAT>

```
Query Match Score 790; DB 2; Length 160;
Best Local Similarity 95.0%; Pred. No. 3.4e-62;
Matches 151; Conservative 6; Mismatches 2; Indels 0; Gaps 0.
```

QY	61	GLPKRYKADRVDEVDHNNFNKXSVIEGGPGLDTEISNEIKRVANPDGGSILKISNKY	120
Db	62	GLPKRYKAGRVDEVDHNNFNKSYVIEGGPGDTEISNEIKRVATPNGSILKINNKY	121
QY	121	HTKGDHEVKAKQVASKEMGETLLRLRAVESYLLAHSDAYN	159
Db	122	HTKGDHEVKAKQIASKEMGETLLRLRAVESYLLAHSDAYN	160

RESULT  
E55699

major pollen allergen Bet v 1f/1 - European white birch  
C:Species: Betula pendula (European white birch)  
C:Date: 01-Dec-1995 #sequence-revision 01-Dec-1995 #text-change 20-Aug-1999  
C:Accession: E55659; S41905; S41900  
R:Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, K.; Schelner  
ch, M.

A;Reference number: A55699; MUID:95155322

A; molecule type: mRNA

A;Residues: 1-160 &lt;SWM&gt;

A;Cross-references: EMBL:X77268; NID:g452735; PIDN:CAA54484.1; PID:g452736

A; Note: the source is designated as *Betula verrucosa*

R. Swoboda, I., Jilek, A.; Ferrelta, F.; Vicente, O.; Hoffman-Sommergruber, K.; Heberl submitted to the EMBL Data Library, January 1994

A;Reference number: S418966

**A;Accession:** S41905

A;Status: preliminary

A:molecule type: mRNA

A;Residues: 1-160 &lt;SW2&gt;

A;Cross-references: EMBL:X77274; NID:g452745; PIDN:CAA54490.1; PID:g452746

A;Note: the source is designated as *Betula verrucosa*

C;Superfamily: pathogenesis-related protein

**C;Keywords:** pollen

F;2-160/Product: major pollen allergen Bet v 1f/i #status experimental &lt;MAT&gt;

Query Match	96.3%	Score 789;	DB 2;	Length 160;
Best Local Similarity	95.0%	Pred. No. 4,1e-62;		
Matches 151; Conservative	5;	Mismatches 3;	Indels 0;	Gaps 0;

```

QY      1 GVENEETETTSVIPAAALFKAFLLDGDNTFPKVAPOAISSVENIEGNGPGTITKISSPE 60
        ||||| | ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db      2 GVENEETEARSVIPAAALFKAFLLDGDNTFPKVAPOAISSVENIEGNGPGTITKISSPE 61

```

61 GLPFKYYKDRVDEVYDHTNFKNYSVIEGGPIGDTLLEKISNEIKIVATPPDGGSIKISNKY 120

Db 62 GFPEKYYKRDVEVDHTNFKYSYSVLEGGPVGDTLEKISNELKIVATPNGSGILKINKKY 121

QY 121 HTKGDHEVKAÉQVKASKENGETLLRAVESYLLAHSDAYN 159

Db 122 HTKGDHEVKAEQIKASKEMGETLLRAVESYLLAHSDAYN 160

## RESULT

C55699  
major pollen allergen Bet v 1d/h - European white birch

C;Species: *Betula pendula* (European white birch)

C;Date: 01-Dec-1995 #sequence\_revison 01-Dec-1995 #text\_change 20-Aug-1999

C;Accession: C55699; S41901; S41898

R;Swoboda, I.; Jilek, A.; Ferreira, F.; Engel, E.; Hoffmann-Sommergruber, I.

ch, M.

J. Biol. Chem. 270, 2607-2613, 1995

A;Title: Isoforms of Bet v 1, the major birch pollen allergen, analyzed by liquid chro-

A;Reference number: A55699; MUID:95155322

A;Accession: C55699

A;molecule type: mRNA

A;Residues: 1-160 <SWO>

A;Cross-references: EMBL:X77266; NID:g452731; PIDN:C

A;Note: the source is designated as *Betula verrucosa*

R; Swoboda, I.; Jilek, A.; Ferreira, F.; Vicente, O.; Hoffman-Sommergruber, K.; Heberl

submitted to the EMBL Data Library, January 1994

A:Reference number: S41896

A:Accession: S41901

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-160 <SW2>

A:Cross-references: EMBL:X77270; NID:g452737; PIDN:CA54486.1; PID:g452738

A:Note: the source is designated as Betula verrucosa

C:Superfamily: pathogenesis-related protein

C:Keywords: pollen

F:2-160/Product: major pollen allergen Bet v 1d/h #status experimental <MAT>  
F:83/Binding site: carbohydrate (Asn) (covalent) #status absent

#### Query Match

Best Local Similarity 96.1%; Score 787; DB 2; Length 160;  
Matches 151; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

Qy 1 GFVNETETTSVIPARLFKAFILDDGDLFPKVAPOAISSEVENIEGNGPGTIKISFPE 60

Db 2 GFVNETETTSVIPARLFKAFILDDGDLFPKVAPOAISSEVENIEGNGPGTIKISFPE 61

Qy 61 GPFKTVKRDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGCGVLKISNKY 120

Db 62 GPFKTVKRDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGCGVLKISNKY 121

Qy 121 HTKGDEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 159

Db 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160

Qy 122 HTKGNEHVAEQYKASKEMGETLLRAVESYLLAHSADYN 160





Qy 1 GVNENETTSVIPAALFPAFLIDGNTLPKPAQPAISVENIBGNGPGTKISPE 60  
Db 2 GVFDIEGTSVIPAALFPAFLIDGNTLPKPAQPAISVENIBGNGPGTKISPE 61  
Qy 61 GLPEKYVARDVDEVDHNFKNYSVIEGCGIDGTLCKISNEIKRYATPGGGSILISKY 120  
Db 62 GSPFRYKERYDEVDHNFKNYSVIEGAVGTLEICNEIKRYAPGGGSILISKY 121  
Qy 121 HTKGDEHYKAEQVASKEMGGTLLRAVESYLLASHDAYN 159  
Db 122 HTKGHEKAEQVASKEMKDALFRAVESYLLASHDAYN 160

RESULT 13  
S47251  
gene 1 Sc2 protein - European white birch  
C:Species: *Betula pendula* (European white birch)  
C:date: 06-Jan-1995 #sequence\_revision 06-Jan-1995 #text\_change 20-Aug-1999  
C:Accession: S47251  
R:Swoboda, I.; Scheiner, O.; Heberle-Bors, E.; Vicente, O.  
Submitted to the EMBL Data Library, August 1994  
A:Reference number: S47249  
A:Accession: S47251  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-159 <SWO>  
A:Cross-references: EMBL:X77600; NID:g534899; PIDD:CA54695.1; PTD:g534900  
A:Note: the source is designated as *Betula verrucosa*  
C:Superfamily: pathogenesis-related protein

[illegible]

RESULT 14  
S30054  
major allergen Cor a 1/6 - European hazel  
C:Species: Corylus avellana (European hazel)  
C:Date: 07-Apr-1994 #sequence\_revision 07-Apr-1994 #text\_change 20-Aug-1999  
R:Accession: S30054  
R:Biological: H.; Ferreira, F.; Hoffmann-Sommergruber, K.; Ehner, C.; Breitenbach, M.;  
Eur. J. Biochem. 212, 355-362, 1993  
A:Title: Four recombinant isoforms of Cor a I, the major allergen of hazel pollen, show  
A:Reference number: S30053; MUID:93185652  
A:Accession: S30054  
A:Molecule type: mRNA  
A:Residues: 1-160 <BBR>  
A:Cross-references: EMBL:X71000; NID:g22689; PIDN:CA50328.1; PID:g22690  
C:Genetics:  
A:Gene: Cor a 1/6  
C:Superfamily: pathogenesis-related protein  
C:Keywords: pollen

Query Match	75.88;	Score 621;	DB 2;	Length 160;
Best Local Similarity	73.08;	Pred. NO. 2.1e-47;		
Matches 116;	Conservative 22;	Mismatches 21;	Indels 0;	Gaps 0;

Db 2 GVENNEVEPTSPYIPARLFKSYVDGDKLIRKVAQATTSVENNEGNGPPTINNITGE 61

QY 61 GLPEFYVADRDVDNDHFNKNTSYIEGPGIDPLEKTSNEIKIYAVPDGGSILKISKY 120

Db 62 GSRYYVERVEDVDNTFNKSYTIEEDVDVGDKLEKCSLKITVAAPGCGSILKISKE 121

QY 121 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLLAHSDAYN 159

Db 122 HAKGDHETNAEDEMKCAKMAEKLLRAVETTYLLAHSAEYN 160

RESULT 15  
S30055  
major allergen Cor a I/11 - European hazel  
C:Species: Corylus avellana (European hazel)  
C:Date: 07-Apr-1994 #sequence\_revision 07-Apr-1994 #text\_change 20-Aug-1999  
C:Accession: S30055; S35507  
R:Breiteneder, H.; Ferreira, F.; Hoffmann-Sommergruber, K.; Ebner, C.; Breiteneder, H.  
Eur. J. Biochem. 212, 355-362, 1993  
A:Title: Four recombinant isoforms of Cor a I, the major allergen of hazel pollen, show  
A:Reference number: S30053; MUID:93185652  
A:Accession: S30055  
A:Molecule type: mRNA  
A:Residues: 1-160 <BRE1>  
A:Cross-references: EMBL:X70997  
R:Breiteneder, H.  
submitted to the EMBL Data Library, February 1993  
A:Reference number: S35507  
A:Accession: S35507  
A:Molecule type: mRNA  
A:Residues: 1-133, 'I', 135-160 <BRE2>  
A:Cross-references: EMBL:X70997; NID:922683; PIDN:CAAS0325.1; PID:g22684  
C:Genetics:  
A:Gene: Cor a I/1  
C:Superfamily: pathogenesis-related protein  
C:Keywords: pollen

[illegible]

Search completed: December 11, 2000, 09:58:34  
Job time: 1011 sec



GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: December 11, 2000, 09:41:43 ; Search time 751.25 Seconds  
(without alignments)  
19.762 Million cell updates/sec

Title: US-09-270-910-37  
Perfect score: 819  
Sequence: 1 GFVNYETETTSVIPARLFK.....GETLLRAVESYLLAHSDAYN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues  
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: SP TREMBL\_14:\*  
2: sp\_archaea:\*  
3: sp\_bacteria:\*  
4: sp\_fungi:\*  
5: sp\_human:\*  
6: sp\_invertebrate:\*  
7: sp\_mhc:\*  
8: sp\_mammal:\*  
9: sp\_organelle:\*  
10: sp\_phage:\*  
11: sp\_plant:\*  
12: sp\_rodent:\*  
13: sp\_virus:\*  
14: sp\_vertebrate:\*  
15: sp\_unclassified:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	814	99.4	160	10	Q96366 betula verr
2	812	99.1	160	10	Q24642 betula verr
3	810	98.9	160	10	Q42499 betula verr
4	808	98.7	160	10	Q23752 betula verr
5	807	98.5	160	10	Q23752 betula verr
6	806	98.4	160	10	Q23752 betula verr
7	805	98.3	160	10	Q23752 betula verr
8	804	98.2	160	10	Q23752 betula verr
9	803	98.2	160	10	Q23752 betula verr
10	803	98.0	160	10	Q23752 betula verr
11	803	98.0	160	10	Q23752 betula verr
12	801	97.8	160	10	Q23752 betula verr
13	801	97.8	160	10	Q23752 betula verr
14	800	97.6	160	10	Q23752 betula verr
15	799	97.6	160	10	Q23752 betula verr
16	798	97.4	160	10	Q23752 betula verr
17	798	97.4	160	10	Q23752 betula verr
18	798	97.4	160	10	Q23752 betula verr
19	796	97.2	160	10	Q23752 betula verr

20	795	97.1	160	10	Q39426 betula verr
21	793	96.8	160	10	Q23751 betula verr
22	792	96.7	160	10	Q23751 betula verr
23	789	96.3	160	10	Q23751 betula verr
24	788	96.2	160	10	Q23751 betula verr
25	787	96.1	160	10	Q23751 betula verr
26	782	95.5	160	10	Q23751 betula verr
27	775	94.6	160	10	Q23751 betula verr
28	773	94.4	160	10	Q23751 betula verr
29	751	91.7	160	10	Q23751 betula verr
30	744	90.8	160	10	Q23751 betula verr
31	743	90.7	160	10	Q23751 betula verr
32	741	90.5	160	10	Q23751 betula verr
33	740	90.4	160	10	Q23751 betula verr
34	736	89.9	160	10	Q23751 betula verr
35	707	86.3	160	10	Q23751 betula verr
36	703	85.8	160	10	Q23751 betula verr
37	700	85.5	160	10	Q23751 betula verr
38	700	85.5	160	10	Q23751 betula verr
39	688	84.0	160	10	Q23751 betula verr
40	664	81.1	161	10	Q23751 betula verr
41	644	78.6	161	10	Q23751 betula verr
42	638	77.9	160	10	Q23751 betula verr
43	636	77.7	160	10	Q23751 betula verr
44	627	76.6	160	10	Q23751 betula verr
45	620	75.7	160	10	Q23751 betula verr

## ALIGNMENTS

RESULT 1  
ID Q96366 PRELIMINARY; PRT: 160 AA.

DT 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]

RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
CC -! SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED PROTEIN.  
DR EMBL: Z80101; CAB02156.1; -.  
DR HSP: P13494; IRTV.  
DR MENDEL: 30889; Betve;1174;30889.  
DR INTERPRO: IPR000916; -.  
DR PFAM: PF00407; bet\_v\_1; 1.  
DR PRINTS: PR00634; BETALLERGEN.  
DR PROSITE: PS00451; PATHOGENESIS\_BETVI; 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17557 MW; B2174110A9588AD4 CRC64;

Query Match 99.4%; Score 814; DB 10; Length 160;  
Best Local Similarity 98.7%; Pred. No. 9.6e-62;  
Matches 157; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GFVNYETETTSVIPARLFKAFILDDGNLFKVAPOAIVSSVNIENGSGPGITIKISFPE 60  
DB 2 GFVNYETETTSVIPARLFKAFILDDGNLFKVAPOAIVSSVNIENGSGPGITIKISFPE 61  
QY 61 GPFKVKRVDVDDHTNKNYSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GPFKVKRVDVDDHTNKNYSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 121

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QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
    |||||||
Db 122 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 160

RESULT 2
ID 024642 PRELIMINARY: PRT: 160 AA.
AC 024642:
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE POLLEN ALLERGEN BETV1.
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-LEAF;

QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
    |||||||
Db 122 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 160

Query Match 99.1%; Score 812; DB 10; Length 160;
Best Local Similarity 98.7%; Pred. No. 1.4e-61;
Matches 157; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVTPARLFKAFILDDGNLFPPKAPQAISVENIEGNGPGTIKKISFPE 60
    |||||||
Db 2 GFVNTEETTSVTPARLFKAFILDDGNLFPPKAPQAISVENIEGNGPGTIKKISFPE 61

QY 61 GLPFKYVDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120
    |||||||
Db 62 GFPFKYVDRVDEVDHTNFKNYSYIEGGPMGDTLEKISNEIKIYATPDGGSILKISNKY 121

QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
    |||||||
Db 122 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 160

RESULT 3
ID 042499 PRELIMINARY: PRT: 160 AA.
AC 042499:
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE MAJOR ALLERGEN BET V 1.
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-LEAF;

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RA Hoffmann-Sommergruber K.;
RL Submitted (MAY-1996) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN;
RA Friedl-Hajek R., Radauer C., O'Riordan G., Hoffmann-Sommergruber K.,
RA Leberl K., Scheiner O., Breiteneder H.;
RT "New Betv1 isoforms including a naturally occurring truncated form of
RT the protein derived from Austrian birch pollen.";
RL Submitted (JUN-1998) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
    PROTEIN.
CC EMBL: AJ002108; CAA96541.1; -.
DR EMBL: 272432; CAA96538.1; -.
DR EMBL: 272429; CAA96538.1; -.
DR HSSP: P15494; 1BTV.
DR MENDEL: 36840; betve;1174;36840.
DR INTERPRO: IPR00916; -.
DR PFM: PF00407; Bet_v-I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
KW Pathogenesis-related protein.
SQ SEQUENCE 160 AA; 17541 MW; E3950410AFB85096 CRC64;

Query Match 98.9%; Score 810; DB 10; Length 160;
Best Local Similarity 98.7%; Pred. No. 2.1e-61;
Matches 157; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVTPARLFKAFILDDGNLFPPKAPQAISVENIEGNGPGTIKKISFPE 60
    |||||||
Db 2 GFVNTEETTSVTPARLFKAFILDDGNLFPPKAPQAISVENIEGNGPGTIKKISFPE 61

QY 61 GLPFKYVDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120
    |||||||
Db 62 GFPFKYVDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 121

QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
    |||||||
Db 122 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 160

RESULT 4
ID 023752 PRELIMINARY: PRT: 160 AA.
AC 023752:
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE POLLEN ALLERGEN BETV1.
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN;
RA Friedl-Hajek R., Radauer C., Hoffmann-Sommergruber K., Leberl K.,
RA Riordan G., Scheiner O., Breiteneder H.;
RL Submitted (OCT-1997) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
    PROTEIN.
CC EMBL: AJ002108; CAA05189.1; -.
DR HSSP: P15494; 1BTV.
DR MENDEL: 26841; betve;1174;26841.
DR INTERPRO: IPR000916; -.
DR PFM: PF00407; bet_v-I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
DR PRODOM: PD000531; -.

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KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17523 MW; 69BB110BBDA1ADD CRC64;

Query Match 98.7%; Score 808; DB 10; Length 160;  
Best Local Similarity 98.7%; Pred. No. 3.1e-61;  
Matches 157; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 60  
DB 2 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 61  
QY 61 GLPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 120  
DB 62 GPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 121  
QY 121 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 159  
DB 122 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 160

RESULT 5  
Q96371

PRELIMINARY; PRT; 160 AA.

AC Q96371;  
DT 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED  
CC PROTEIN.  
DR EMBL; 280106; CAB02161.1; -.  
DR HSSP; P15494; 1BTV.  
DR MENDEL; 30893; Betve; 1174; 30893.  
DR INTERPRO; IPR000916; -.  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
DR PRODOM; PD000531; -; 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17670 MW; 69BA4410BBA6A1AC6 CRC64;

Query Match 98.5%; Score 807; DB 10; Length 160;  
Best Local Similarity 98.7%; Pred. No. 3.7e-61;  
Matches 157; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 60  
DB 2 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 61  
QY 61 GLPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 120  
DB 62 GPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 121  
QY 121 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 159  
DB 122 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 160

RESULT 6  
Q9SCH8  
ID Q9SCH8 PRELIMINARY; PRT; 160 AA.  
AC Q9SCH8;

DT 01-MAY-2000 (TREMBLrel. 13, Created)  
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BETVI, ISOFORM AT50.  
GN BETVI.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.

QY 1 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 60  
DB 2 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 61  
QY 61 GLPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 120  
DB 62 GPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 121  
QY 121 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 159  
DB 122 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 160

Query Match 98.4%; Score 806; DB 10; Length 160;  
Best Local Similarity 97.5%; Pred. No. 4.5e-61;  
Matches 155; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 60  
DB 2 GVFNYETETTSVTPARLRFKAFILDDGDLFPKVAPOAISSVENIEGNGPGTIIKISFPE 61  
QY 61 GLPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 120  
DB 62 GPFKTVKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPPGGSILKISNKY 121  
QY 121 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 159  
DB 122 HTKGDEHVKAEOVKASKEMGETILLRAVESYLLAHSADAYN 160

RESULT 7  
Q96370

PRELIMINARY; PRT; 160 AA.

AC Q96370;  
DT 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED  
CC PROTEIN.  
DR EMBL; 280105; CAB02160.1; -.  
DR HSSP; P15494; 1BTV.  
DR MENDEL; 30892; Betve; 1174; 30892.  
DR INTERPRO; IPR003916; -.  
DR PFAM; PF00407; bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
DR PRODOM; PD000531; -; 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17541 MW; DBAF110BBD1CDADB CRC64;

Query Match 98.3%; Score 805; DB 10; Length 160;  
Best Local Similarity 98.1%; Pred. No. 5.5e-61;  
Matches 156; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 60  
DB 2 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPEKYKDRVDEVDHTNFKNYSYIEGGPMGDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 160

RESULT 8  
Q9SC10 PRELIMINARY; PRT; 160 AA.  
AC Q9SC10;  
DT 01-MAY-2000 (Tremblrel. 13, Created)  
DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)  
DT 01-JUN-2000 (Tremblrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BETV1, ISOFORM AT37.  
GN BETV1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN;  
RA Friedl-Hajek R., Radauer C., Riordain G., Hoffmann-Sommergruber K.,  
Leberl K., Scheiner O., Breiteneder H.;  
RT "New Bet v 1 isoforms including a naturally occurring truncated form  
of the protein derived from Austrian birch pollen.";  
RL Mol. Immunol. 36:639-645(1999).  
DR EMBL: AJ006908; CAA07323.1; -.  
DR INTERPRO: IPR000916; -.  
DR PFAM: PF00407; Bet\_v\_1; 1.  
DR PRINTS: PR00634; BETALLERGEN.  
DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
SQ SEQUENCE 160 AA; 17572 MW; 99A3581E5B3A03FB CRC64;

Query Match 98.2%; Score 804; DB 10; Length 160;  
Best Local Similarity 97.5%; Pred. No. 6.7e-61;  
Matches 153; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 60  
DB 2 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPEKYKDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 160

RESULT 9  
Q9SC9 PRELIMINARY; PRT; 160 AA.  
AC Q9SC9;  
DT 01-MAY-2000 (Tremblrel. 13, Created)  
DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)  
DT 01-JUN-2000 (Tremblrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BETV1, ISOFORM AT45.  
GN BETV1.  
OS Betula verrucosa (White birch) (Betula pendula).

OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN;  
RA Friedl-Hajek R., Radauer C., Riordain G., Hoffmann-Sommergruber K.,  
Leberl K., Scheiner O., Breiteneder H.;  
RT "New Bet v 1 isoforms including a naturally occurring truncated form  
of the protein derived from Austrian birch pollen.";  
RL Mol. Immunol. 36:639-645(1999).  
DR EMBL: AJ006910; CAA07325.1; -.  
DR INTERPRO: IPR000916; -.  
DR PFAM: PF00407; Bet\_v\_1; 1.  
DR PRINTS: PR00634; BETALLERGEN.  
DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
SQ SEQUENCE 160 AA; 17615 MW; 5A2A67BCC645CA3E CRC64;

Query Match 98.2%; Score 804; DB 10; Length 160;  
Best Local Similarity 97.5%; Pred. No. 6.7e-61;  
Matches 155; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 60  
DB 2 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPEKYKDRVDEVDHTNFKNYSYIEGGPMGDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 160

RESULT 10  
Q96365 PRELIMINARY; PRT; 160 AA.  
AC Q96365;  
DT 01-FEB-1997 (Tremblrel. 02, Created)  
DT 01-FEB-1997 (Tremblrel. 02, Last sequence update)  
DT 01-JUN-2000 (Tremblrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN OBTAINED FROM ALLERCON, SWEDEN;  
RA Larsen J.N.;  
RT Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
CC PROTEIN.  
DR EMBL: Z80100; CAB02155.1; -.  
DR HSSP: P15494; IBTV.  
DR MENDEL: 30888; Betve;1174;30888.  
DR INTERPRO: IPR000916; -.  
DR PFAM: PF00407; Bet\_v\_1; 1.  
DR PRINTS: PR00634; BETALLERGEN.  
DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
DR PRODOM: PD000531; -. 1.  
SQ Pathogenesis-related protein.  
SEQUENCE 160 AA; 17558 MW; 4200581E49B893B9 CRC64;

Query Match 98.0%; Score 803; DB 10; Length 160;  
Best Local Similarity 96.9%; Pred. No. 8.1e-61;  
Matches 154; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 60  
DB 2 GFVNYETTSVIPAARLFKAFILIDGNLFPKVAPOAISSVENIEGNGPGTIKKISFPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKNYSYIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPEKYKDRVDEVDHTNFKNYSYIEGGPMGDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAQVAKSKEMGETLLRAVESYLLAHSDAYN 160

DB 2 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 61  
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 120  
DB 62 GFPEFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 159  
DB 122 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 160

RESULT 11  
Q95YWI PRELIMINARY; PRT; 160 AA.  
AC 095YWI:  
DT 01-MAY-2000 (TReMBLrel. 13, Created)  
DT 01-MAY-2000 (TReMBLrel. 13, Last sequence update)  
DT 01-JUN-2000 (TReMBLrel. 14, Last annotation update)  
DE ISOLLERGEN BET V 1 B2.  
GN BETV1B2.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Son D.Y., Hausstein D., Vieths S.  
RT Cloning and characterization of isoforms of the major birchpollen  
allergen Bet v 1.  
RL Submitted (JAN-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF124838; AAD26561.1; -  
DR INTERPRO: IPR000916; -  
DR PFAM: PF00407; Bet\_v\_1; 1.  
DR PRINTS; PRO0634; BETALLERGEN.  
SQ SEQUENCE 160 AA; 17565 MW; E9BSF580BDALACS CRC64;

Query Match 98.0%; Score 803; DB 10; Length 160;  
Best local Similarity 98.1%; Pred. No. 8, 1e-61;  
Matches 156; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 60  
DB 2 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 61  
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 120  
DB 62 GFPEFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 159  
DB 122 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 160

RESULT 12  
Q96368 PRELIMINARY; PRT; 160 AA.  
AC 096368:  
DT 01-FEB-1997 (TReMBLrel. 02, Created)  
DT 01-FEB-1997 (TReMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TReMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA TISSUE-POLLEN OBTAINED FROM ALLERCON, SWEDEN;  
RL Larsen J.N.;  
CC Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
-1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
PROTEIN.

DR EMBL; Z80103; CAB02158.1; -  
DR HSSP; P15494; 1BTV.  
DR MENDEL; 30891; Betv.1174;30891.  
DR INTERPRO; IPR000916; -  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PRO0634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETV1; 1.  
DR PRODOM; PD000531; -; 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17466 MW; 430D72F300B9BCE CRC64;

Query Match 97.8%; Score 801; DB 10; Length 160;  
Best local Similarity 97.5%; Pred. No. 1, 2e-60;  
Matches 155; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 60  
DB 2 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 61  
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 120  
DB 62 GFPEFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 159  
DB 122 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 160

RESULT 13  
Q9SC12 PRELIMINARY; PRT; 160 AA.  
AC 09SC12:  
DT 01-MAY-2000 (TReMBLrel. 13, Created)  
DT 01-MAY-2000 (TReMBLrel. 13, Last sequence update)  
DT 01-JUN-2000 (TReMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BETV1, ISOFORM AT10.  
GN BETV1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA TISSUE-POLLEN;  
RA Friedl-Hajer R.; Radner C.; Riordan G.; Hoffmann-Sommergruber K.;  
Leberl K.; Scheiner O.; Breiteneder H.;  
RT "New Bet v 1 isoforms including a naturally occurring truncated form  
of the protein derived from Austrian birch pollen."  
RL MOL. Immunol. 35:639-645(1999).  
DR EMBL; AJ006904; CA07319.1; -  
DR INTERPRO: IPR000916; -  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PRO0634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETV1; 1.  
SQ SEQUENCE 160 AA; 17520 MW; EB3128ED2A630A23 CRC64;

Query Match 97.8%; Score 801; DB 10; Length 160;  
Best local Similarity 97.5%; Pred. No. 1, 2e-60;  
Matches 155; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 60  
DB 2 GVENVETETTSVIPARLFKAFLIDGDNLPKPAPOAISSVENIEGNGGPTIKKISFPE 61  
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 120  
DB 62 GFPEFKYKDVDEVDHTNFKNYSVIEGGPIGDTLEKISNEIKIVATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 159  
DB 122 HTKGDHEVKAQVYKASKEMGETLLRAVESYLLAHSADAYN 160

RESULT 14  
Q9SYW0 PRELIMINARY; PRT; 160 AA.  
AC Q9SYW0;  
DT 01-MAY-2000 (TREMBLrel. 13, Created)  
DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)  
DE ISOLALBERGEN BET V 1 BL.  
GN BETV1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Son D.Y., Haustein D., Vieths S.;  
RT "Cloning and characterization of isoforms of the major birchpollen  
allergen Bet v 1."  
RL Submitted (JAN-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF124837; AAD26560.1; -.  
DR INTERPRO; IPR000916; -.  
DR PAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETV1; 1.  
SQ SEQUENCE 160 AA; 17530 MM; 4200581E49B88CD4 CRC64;

Query Match 97.7%; Score 800; DB 10; Length 160;  
Best Local Similarity 96.2%; Pred. No. 1.5e-60;  
Matches 153; Conservative 4; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVIPARLFKAFILGDNLFPVAPQAISVENIEGNGPGTIKISPE 60  
DB 2 GFVNTEETTSVIPARLFKAFILGDNLFPVAPQAISVENIEGNGPGTIKISPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPFKYKDRVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAEQVKASKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGNHEVKAEQVKASKEMGETLLRAVESYLLAHSDAYN 160

RESULT 15  
Q9SCT3 PRELIMINARY; PRT; 160 AA.  
AC Q9SCT3;  
DT 01-MAY-2000 (TREMBLrel. 13, Created)  
DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)  
DE POLLEN ALBERGEN BETV1, ISOFORM A18.  
GN BETV1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Friedl-Hajek R., Radauer C., Riordain G., Hoffmann-Sommergruber K.,  
Leberl K., Scheiner O., Breiteneder H.;  
RT "New Bet v 1 isoforms including a naturally occurring truncated form  
of the protein derived from Austrian birch pollen."  
RL EMBL; AJ006903; CAA07318.1; -.  
DR INTERPRO; IPR000916; -.  
DR PAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETV1; 1.  
SQ SEQUENCE 160 AA; 17588 MM; 5715581E49A223E9 CRC64;

Query Match 97.6%; Score 799; DB 10; Length 160;  
Best Local Similarity 96.2%; Pred. No. 1.8e-60;  
Matches 153; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVIPARLFKAFILGDNLFPVAPQAISVENIEGNGPGTIKISPE 60  
DB 2 GFVNTEETTSVIPARLFKAFILGDNLFPVAPQAISVENIEGNGPGTIKISPE 61  
QY 61 GLPFKYKDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GFPFKYKDRVDEVDHTNFKYNSVIEGGPGVDTLEKISNEIKIYATPDGGSILKISNKY 121  
QY 121 HTKGDHEVKAEQVKASKEMGETLLRAVESYLLAHSDAYN 159  
DB 122 HTKGNHEVKAEQVKASKEMGETLLRAVESYLLAHSDAYN 160

Search completed: December 11, 2000, 10:11:10  
Job time: 1767 sec







GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: December 11, 2000, 10:41:28 ; Search time 10.01 seconds  
(without alignments)  
507.465 Million cell updates/sec

Title: US-09-270-910-37-COPY  
Perfect score: 818  
Sequence: 1 GVFNVEFTTSVIPARLFK.....GETLLRAVESTLAHSDAYN 159

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues  
Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : SwissProt\_39.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	810	99.0	159	1	BVLA_BETVE
2	790	96.6	159	1	BVLJ_BETVE
3	785	96.0	159	1	BVLB_BETVE
4	784	95.8	159	1	BVLK_BETVE
5	782	95.6	159	1	BVLG_BETVE
6	781	95.5	159	1	BVLH_BETVE
7	775	94.7	159	1	BVLJ_BETVE
8	755	89.9	159	1	BVLJ_BETVE
9	729	89.1	159	1	BVLB_BETVE
10	725	88.6	159	1	BVLK_BETVE
11	717	87.7	159	1	BVLG_BETVE
12	678	82.9	159	1	MPAG_ALINGL
13	635	77.6	159	1	MPAG_CARBE
14	621	75.9	159	1	MPAL_CARBE
15	610	74.6	159	1	MPAA_CORAV
16	500	61.1	160	1	PR01_PRAVAV
17	458.5	56.1	157	1	MA11_MALDO
18	415.5	50.8	158	1	PRL1_MEDSA
19	381	46.6	158	1	DRR3_PPA
20	377	46.1	158	1	AB10_PPA
21	376	46.0	158	1	SAM2_SOYBN
22	372	45.5	158	1	DRR4_PPA
23	369.5	45.2	159	1	DRR1_PPA
24	365	44.6	155	1	PRL1_PPAVU
25	357.5	43.7	155	1	PR2_PPAVU
26	344	42.1	156	1	L18B_LUPLU
27	337.5	41.3	155	1	PRSI_SOLTU
28	337.5	41.3	155	1	PRSI_SOLTU
29	335	41.0	156	1	L18A_LUPLU
30	334.5	40.9	158	1	PR2_PPERC
31	327.5	40.0	157	1	AB11_PPA
32	322	39.4	154	1	RNS1_PANGI
33	311	38.0	155	1	PRL1_PETCR

34	309.5	37.8	154	1	MPAG_APIGR
35	307.5	37.6	153	1	RNS2_PANGI
36	307	37.5	155	1	PRL3_PETCR
37	296	36.2	157	1	RAP_TAROF
38	277.5	33.9	154	1	DAU1_DAUCA
39	240	29.3	158	1	PRL1_ASPOF
40	88	10.8	615	1	DNAR_THETH
41	83	10.1	387	1	YRS8_CAEEL
42	80.5	9.8	956	1	CB31_YEAST
43	79.5	9.7	936	1	ORP1_MOUSE
44	79	9.7	669	1	DAFL_CAEEL
45	79	9.7	726	1	NU84_YEAST

## ALIGNMENTS

RESULT 1  
ID BVLA\_BETVE STANDARD: PRT: 159 AA.  
AC P15494; 096369;  
DT 01-APR-1990 (Rel. 14, Created)  
DT 01-APR-1990 (Rel. 14, Last sequence update)  
DE 15-JUL-1998 (Rel. 36, Last annotation update)  
DI MAJOR POLLEN ALLERGEN BET V 1-A (BET V I-A).  
GN BETVIA OR BETVI.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosid1 I;  
OC Fagales; Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A., AND SEQUENCE OF 1-34.  
RC TISSUE-POLLEN:  
RX MEDLINE: 90005395.  
RA Breiteneder H., Pettenburger K., Bito A., Valenta R., Kraft D.,  
RA Rumpold H., Scheiner O., Breitenbach M.;  
RT "The gene coding for the major birch pollen allergen Betv1, is highly  
RT homologous to a pea disease resistance response gene";  
RL EMBO J. 8:1935-1938(1989).  
RN [2]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN:  
RX MEDLINE: 95155322.  
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,  
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,  
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;  
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by  
RT liquid chromatography, mass spectrometry, and cDNA cloning.";  
RL J. Biol. Chem. 270:2607-2613(1995).  
RN [4]  
RP PARTIAL SEQUENCE.  
RX MEDLINE: 91317572.  
RA Elsayed S., Vlk H.;  
RT "Purification and N-terminal amino acid sequence of two birch pollen  
RT isoallergens (Bet v 1 and Bet v II).";  
RL Int. Arch. Allergy Appl. Immunol. 93:378-384(1990).  
RN [5]  
RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS), AND STRUCTURE BY NMR.  
RX MEDLINE: 97102431.  
RA Gajdhe N., Osmark P., Poulsen F.M., Ipsen H., Larsen J.N.,  
RA van Neeven R.J.J., Schou C., Loewenstein H., Spangfort M.D.;  
RT "X-ray and NMR structure of Bet v 1, the origin of birch pollen  
RT allergy";  
RL Nat. Struct. Biol. 3:1040-1045(1996).  
CC -I- SUBCELLULAR LOCATION: CYTOPLASMIC.  
CC -I- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH  
CC AMERICA AND USSR.  
CC -I- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED

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CC -----
DR EMBL; X15877; CAA33887.1; -
DR EMBL; Z80098; CAB02153.1; -
DR EMBL; Z80099; CAB02154.1; -
DR EMBL; Z80104; CAB02159.1; -
DR PIR; S05376; S05376.
DR PDB; 1BTU; 12-AUG-97.
DR PDB; 1BV1; 17-SEP-97.
DR INTERPRO; IPR000916; -.
DR PFM; PF00407; Bet_v-I; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS-BETV1; 1.
DR Pathogenesis-related protein; Allergen; Multigene family;
KW 3D-structure.
FT INIT_MET 0
FT VARIANT 62 0 F->L.
SQ SEQUENCE 159 AA; 17440 MW; 96E181194BBA83E6 CRC64;

Query Match 99.0%; Score 810; DB 1; Length 159;
Best Local Similarity 98.7%; Pred. No. 5e-64; 2; Indels 0; Gaps 0;
Matches 157; Conservative 0; Mismatches 2;

QY 1 GFVNTEFTTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
DB 1 GFVNTEFTTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
QY 61 GLPEKYKRDVDEVDHTNKYSYIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 61 GLPEKYKRDVDEVDHTNKYSYIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DQ 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 2
BY1L BETVE STANDARD: PRT; 159 AA.
ID BY1L BETVE
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-J (BET V I-J).
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE; 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----
DR EMBL; X77271; CAA54487.1; -
DR HSSP; P15494; 1bry. -.
DR INTERPRO; IPR000916; -.
DR PFM; PF00407; Bet_v-I; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS-BETV1; 1.
DR Pathogenesis-related protein; Allergen; Multigene family.
FT INIT_MET 0
FT VARIANT 62 0
SQ SEQUENCE 159 AA; 17408 MW; D2AC26E9E7710ABD CRC64;

Query Match 96.6%; Score 790; DB 1; Length 159;
Best Local Similarity 95.0%; Pred. No. 2.8e-62;
Matches 151; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNTEFTTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
DB 1 GFVNTEFTTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
QY 61 GLPEKYKRDVDEVDHTNKYSYIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 61 GLPEKYKRDVDEVDHTNKYSYIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
QY 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DQ 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEVKAQVKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 3
BY1L BETVE STANDARD: PRT; 159 AA.
ID BY1L BETVE
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-E (BET V I-E).
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN.
RX MEDLINE; 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
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CC -----
DR EMBL: X77267; CAA54483.1; -
DR HSSP: P15494; 1BTY.
DR INTERPRO: IPR000916; -
DR PFAM: PF00407; Bet_v_I; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17316 MW; 3E752543EDD1A08E CRC64;

Query Match
Best Local Similarity 96.0%; Score 785; DB 1; Length 159;
Matches 150; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

QY 1 GVNFEETTSVIPARLFAAFILDDGNLFPKPAQAISSEVENSNGGCGTITKISFPE 60
DB 1 GVNFEETTSVIPARLFAAFILDDGNLFPKPAQAISSEVENSNGGCGTITKISFPE 60
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGPIGDTLEKISNEIKIVATPNNGSILKINKY 120
DB 61 GLPFKYKDVDEVDHTNFKNYSVIEGPIGDTLEKISNEIKIVATPNNGSILKINKY 120
QY 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 4
BVLJ BETVE STANDARD; PRT; 159 AA.
AC P43177;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-F/I (BET V I-F/I).
GN BETVI AND BETVI1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN 1
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN:
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOSOL; MITOCH.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
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CC -----
CC EMBL: X77268; CAA54484.1; -
CC EMBL: X77270; CAA54486.1; -
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -
CC PFAM: PF00407; Bet_v_I; 1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17418 MW; 8D1F38F8E56106FD CRC64;

Query Match
Best Local Similarity 95.6%; Score 782; DB 1; Length 159;
Matches 150; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

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KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17421 MW; 6063F9C82A71165C CRC64;

Query Match
Best Local Similarity 95.8%; Score 784; DB 1; Length 159;
Matches 150; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 GVNFEETTSVIPARLFAAFILDDGNLFPKPAQAISSEVENSNGGCGTITKISFPE 60
DB 1 GVNFEETTSVIPARLFAAFILDDGNLFPKPAQAISSEVENSNGGCGTITKISFPE 60
QY 61 GLPFKYKDVDEVDHTNFKNYSVIEGPIGDTLEKISNEIKIVATPNNGSILKINKY 120
DB 61 GLPFKYKDVDEVDHTNFKNYSVIEGPIGDTLEKISNEIKIVATPNNGSILKINKY 120
QY 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 5
BVLJ BETVE STANDARD; PRT; 159 AA.
AC P43177;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-D/H (BET V I-D/H).
GN BETVI AND BETVI1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN 1
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN:
RX MEDLINE: 95155322.
RA Swoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOSOL; MITOCH.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL: X77266; CAA54482.1; -
CC EMBL: X77270; CAA54486.1; -
CC HSSP: P15494; 1BTY.
CC INTERPRO: IPR000916; -
CC PFAM: PF00407; Bet_v_I; 1.
CC PRINTS: PR00634; BETALLERGEN.
CC PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17418 MW; 8D1F38F8E56106FD CRC64;

Query Match
Best Local Similarity 94.3%; Pred. No. 1.4e-61;

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Matches	150:	Conservative	4:	Mismatches	5:	Indels	0:	Gaps	0:
QY	1	GVFNVEETETTSVIPARLFKAFILFDGDNLFPRVAPPAISISVENISNGSPGRIKISPE	60						
DB	1	GVFNVEIETTSVIPARLFKAFILFDGDNLVPRKAPPAISISVENISNGSPGRIKINPE	60						
QY	61	GLPFKVKRVQVDEVDHTNFKYNSVYEGGPIGDTLEKISNEIKIYATPPGGSLIKSNKY	120						
DB	61	GLPFKVKRVQVDEVDHTNFKYNSVYEGGPGVDTLEKISNEIKIYATPPGGCVLKSNTY	120						
QY	121	HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAYN	159						
DB	121	HTKGNHEVKAEOVKASKEMGETLLRAVESYLLAHSDAYN	159						
RESULT	6								
ID	BVIG-BETVE	STANDARD;	PRT;	159	AA.				
AC	P43180;								
DT	01-NOV-1995 (Rel. 32, Created)								
DT	01-NOV-1995 (Rel. 32, Last sequence update)								
DT	01-NOV-1997 (Rel. 35, Last annotation update)								
DE	MAJOR POLLEN ALLERGEN BET V 1-G (BET V 1-G).								
GN	BETVIG.								
OS	Betula verrucosa (White birch) (Betula pendula).								
OC	Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;								
OC	Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;								
OC	Fagales; Betulaceae; Betula.								
RN	[1]								
RP	SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.								
RC	TISSUE=POLLEN.								
RA	MEDLINE; 95155322.								
RA	Swohoda I., Jillek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,								
RA	Schneider O., Kraft D., Breiteneder H., Plettenacher E., Schmid E.,								
RA	Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.,								
RT	"isoforms of Bet v 1, the major birch pollen allergen, analyzed by								
RT	liquid chromatography, mass spectrometry, and cDNA cloning."								
RL	J. Biol. Chem. 270:2607-2613(1995).								
CC	-1- SUBCELLULAR LOCATION: CYTOPLASMIC.								
CC	-1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH								
CC	AMERICA AND USSR.								
CC	-1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED								
CC	PROTEIN.								
CC	-----								
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CC	or send an email to <a href="mailto:license@isb-slb.ch">license@isb-slb.ch</a> ).								
CC	-----								
DR	EMBL; X77269; CAA54485.1; -.								
DR	HSSD; P15494; 18TV.								
DR	INTERPRO: IPR000916; -.								
DR	PFAM: PF00407; Bet_v1; 1.								
DR	PRINTS: PR00634; BETALLERGEN.								
DR	PROSITE: PS00451; PATHOGENESIS-BETV1; 1.								
KW	Pathogenesis-related protein; Allergen; Multigene family.								
FT	INIT MET								
FT	0								
FT	0								
SEQUENCE	159 AA: 17420 MW; BBAEBDDCC24IDB CRC64;								
Query Match	95.5%; Score 781; DB 1; Length 159;								
Best Local Similarity	93.7%; Pred. No. 1.7e-61;								
Matches 149; Conservative	6; Mismatches 4; Indels 0; Gaps 0;								
QY	1	GVFNVEETTSVIPARLFKAFILFDGDNLFPRVAPPAISISVENISNGSPGRIKISPE	60						
DB	1	GVFNVEIETTSVIPARLFKAFILFDGDNLVPRVAPPAISISVENISNGSPGRIKINPE	60						
QY	61	GLPFKVKRVQVDEVDHTNFKYNSVYEGGPIGDTLEKISNEIKIYATPPGGSLIKSNKY	120						
DB	61	GLPFKVKRVQVDEVDHTNFKYNSVYEGGPGVDTLEKISNEIKIYATPPGGCVLKSNTY	12						

[illegible]

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BVLM_BETVE
ID BVLM_BETVE STANDARD: PRT: 159 AA.
AC P43186;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-M/N (BET V I-M/N).
GN BETVLM AND BETVLM.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Snoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pilteneuer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RT J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
CC -----
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CC or send an email to license@isb-sid.ch).
CC -----
CC EMBL: X81972; CAA57497.1; -
CC DR EMBL: X82028; CAA57550.1; -
CC DR HSSP: P15494; 1BTV.
CC DR INTERPRO: IPR000916; -
CC DR PFAM: PF00407; Bet_v_1; 1.
CC DR PRINTS: PR00634; BETALLERGEN.
CC DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
CC KW pathogenesis-related protein; Allergen; Multigene family.
CC FT INIT MET 0
CC FT SEQUENCE 159 AA; 17391 MW; ABA0148849985E2 CRC64;

Query Match 89.9%; Score 735; DB 1; Length 159;
Best local Similarity 88.7%; Pred. No. 1.7e-57;
Matches 141; Conservative 8; Mismatches 10; Indels 0; Gaps 0;

QY 1 GVNVEETETTSVIPARLFRAFLFDGDLNLFPKYAPQAISSEVENISGNGGPGTIKTSFPE 60
DB 1 GVNVEETETTSVIPARLFRAFLFDGDLNLFPKYAPQAISSEVENISGNGGPGTIKTSFPE 60
QY 61 GLPFKYKRVKDVVDHDTNFKYNSVIEGPIGDTLEKISNEIKIVATPPDGSILKTSNKY 120
DB 61 GLPFKYKRVKDVVDHDTNFKYNSVIEGPIGDTLEKISNEIKIVATPPDGSILKTSNKY 120
QY 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVKAEHMKAIKEKGEALLRAVESYLLAHSDAYN 159

RESULT 9
BVLM_BETVE STANDARD: PRT: 159 AA.
ID BVLM_BETVE
AC P45431;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-B (BET V I-B).

```

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GN BETVIB.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Snoboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pilteneuer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Ahorn H., Breitenbach M.;
RT "Isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RT J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
CC -----
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CC -----
CC EMBL: X77200; CAA54421.1; -
CC DR HSSP: P15494; 1BTV.
CC DR INTERPRO: IPR000916; -
CC DR PFAM: PF00407; Bet_v_1; 1.
CC DR PRINTS: PR00634; BETALLERGEN.
CC DR PROSITE: PS00451; PATHOGENESIS_BETV1; 1.
CC KW pathogenesis-related protein; Allergen; Multigene family.
CC FT INIT MET 0
CC FT SEQUENCE 159 AA; 17406 MW; ECC8D391E0C96267 CRC64;

Query Match 89.1%; Score 729; DB 1; Length 159;
Best local Similarity 88.1%; Pred. No. 5.8e-57;
Matches 140; Conservative 8; Mismatches 11; Indels 0; Gaps 0;

QY 1 GVNVEETETTSVIPARLFRAFLFDGDLNLFPKYAPQAISSEVENISGNGGPGTIKTSFPE 60
DB 1 GVNVEETETTSVIPARLFRAFLFDGDLNLFPKYAPQAISSEVENISGNGGPGTIKTSFPE 60
QY 61 GLPFKYKRVKDVVDHDTNFKYNSVIEGPIGDTLEKISNEIKIVATPPDGSILKTSNKY 120
DB 61 GSPFKYKRVKDVVDHDTNFKYNSVIEGALGDTLEKICNEIKIVATPPDGSILKTSNKY 120
QY 121 HTKGDEHVKAEQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVKAEHMKAIKEKGEALLRAVESYLLAHSDAYN 159

RESULT 10
BVLM_BETVE STANDARD: PRT: 159 AA.
ID BVLM_BETVE
AC P43184;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-K (BET V I-K).
GN BETV1K.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.

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RX MEDLINE: 95155322.
RA Sweboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Anorn H., Breitenbach M.,
RT "isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.
CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X77272; CAAS4488.1; -.
DR HSSP: P15494; IRTV.
DR INTERPRO: IPR000916; -.
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17392 MW; AAF9E6F197C96517 CRC64;

Query Match 88.6%; Score 725; DB 1; Length 159;
Best Local Similarity 87.4%; Pred. No. 1.3e-56;
Matches 139; Conservative 9; Mismatches 11; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVIPAARLFKAFILDGDLFPKVAPOAISSEVENISGNGPGTIKIKISPE 60
DB 1 GFVNSEETTSVIPAARLFKAFILLEGDTLIPKVAPOAISSEVENIEGNGPGTIKIKITPE 60
QY 61 GLPEFYKRDVDEVDHTNKYNYSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISKY 120
DB 61 GSPFKYKRVDEVDHANKYSYSMTGEGALDLEKICNEIKIYATPDGGSILKISKY 120
QY 121 HTKGDHEVKAEOVKASKEGELLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEHMKAIKEKGALLRAVESTYLLAHSDAYN 159

RESULT 11
BVL BETVE
ID BVL BETVE STANDARD: PRT; 159 AA.
AC P43176;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN BET V 1-C (BET V I-C).
GN BETVIC.
OS Betula verrucosa (white birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RC TISSUE-POLLEN;
RX MEDLINE: 95155322.
RA Sweboda I., Jilek A., Ferreira F., Engel E., Hoffman-Sommergruber K.,
RA Scheiner O., Kraft D., Breiteneder H., Pittenauer E., Schmid E.,
RA Vicente O., Heberle-Bors E., Anorn H., Breitenbach M.,
RT "isoforms of Bet v 1, the major birch pollen allergen, analyzed by
RT liquid chromatography, mass spectrometry, and cDNA cloning.";
RL J. Biol. Chem. 270:2607-2613(1995).
CC -1- SUBCELLULAR LOCATION: CYTOPLASMIC.

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CC -1- DISEASE: MAIN CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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CC -----
DR EMBL: X77265; CAAS4481.1; -.
DR HSSP: P15494; IRTV.
DR INTERPRO: IPR000916; -.
DR PFAM: PF00407; Bet_v_1; 1.
DR PRINTS: PR00634; BETALLERGEN.
DR PROSITE: PS00451; PATHOGENESIS_BETVI; 1.
KW Pathogenesis-related protein; Allergen; Multigene family.
FT INIT MET 0
SQ SEQUENCE 159 AA; 17383 MW; AAF9A95A7C96517 CRC64;

Query Match 87.7%; Score 717; DB 1; Length 159;
Best Local Similarity 86.8%; Pred. No. 6.4e-56;
Matches 138; Conservative 9; Mismatches 12; Indels 0; Gaps 0;

QY 1 GFVNTEETTSVIPAARLFKAFILDGDLFPKVAPOAISSEVENISGNGPGTIKIKISPE 60
DB 1 GFVNSEETTSVIPAARLFKAFILLEGDTLIPKVAPOAISSEVENIEGNGPGTIKIKITPE 60
QY 61 GLPEFYKRDVDEVDHTNKYNYSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISKY 120
DB 61 GSPFKYKRVDEVDHANKYSYSMTGEGALDLEKICNEIKIYATPDGGSILKISKY 120
QY 121 HTKGDHEVKAEOVKASKEGELLRAVESYLLAHSDAYN 159
DB 121 HTKGDHEKAEHMKAIKEKGALLRAVESTYLLAHSDAYN 159

RESULT 12
MPG ALNGL
ID MPG ALNGL STANDARD: PRT; 159 AA.
AC P38948;
DT 01-FEB-1995 (Rel. 31, Created)
DT 01-FEB-1995 (Rel. 31, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN ALN G 1 (ALN G I).
OS Alnus glutinosa (Alder).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Alnus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN;
RX MEDLINE: 93094476.
RA Breiteneder H., Ferreira F., Reikstorfer A., Duchene M.,
RA Valenta R., Hoffmann-Sommergruber K., Ebner C., Breitenbach M.,
RA Kraft D., Scheiner O.,
RT "Complementary DNA cloning and expression in Escherichia coli of Aln
RT g 1, the major allergen in pollen of alder (Alnus glutinosa).";
RL J. Allergy Clin. Immunol. 90:909-917(1992).
CC -1- DISEASE: A CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR.
CC -1- SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
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DB 1 GVENFEAEPTSVIPARLFRKSYVLDDGDKLIPKAPQVYSSEVNGGSGGTIKNTFAE 60
QY 61 GLPEFYVKRVDVNDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPDGSLIKSNKY 120
DB 61 GLPEFYVKRVDVNDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPDGSLIKSNKY 120
OY 121 HTKGDEHVAEKQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVAEKQYKASKEMGETLLRAVESYLLAHSDAYN 159

RESULT 15
MPAA_CORAV STANDARD: PRT; 159 AA.
ID MPAA_CORAV STANDARD: PRT; 159 AA.
AC 008407:
DT 01-OCT-1994 (Rel. 30, Created)
DT 01-FEB-1995 (Rel. 31, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE MAJOR POLLEN ALLERGEN COR A 1, ISOFORMS 5, 6, 11 AND 16 (COR A 1).
OS Corylus avellana (European hazel).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;
OC Fagales; Betulaceae; Corylus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN:
RX MEDLINE; 93185652.
RA Breiteneder H., Ferreira F., Hoffmann-Sommergruber K., Ebner C.,
RA Breitenbach M., Rumpold H., Kraft D., Scheiner O.;
RT "Four recombinant isoforms of Cor a 1, the major allergen of hazel
RT pollen, show different IGE-binding properties.";
RL Eur. J. Biochem. 212:355-362(1993).
CC -1- DISEASE: A CAUSE OF TYPE I ALLERGIC REACTIONS IN EUROPE, NORTH
CC AMERICA AND USSR. THE COR A 1 ISOFORMS DISPLAY DIFFERENT ANTIGENIC
CC AND ALLERGENIC PROPERTIES.
CC -1- MISCELLANEOUS: THE SEQUENCE SHOWN IS THAT OF CLONE COR A 1/5.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
CC -----
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CC -----
DR EMBL; X70999; CAA50327.1; -
DR EMBL; X71000; CAA50328.1; -
DR EMBL; X70997; CAA50325.1; -
DR EMBL; X70998; CAA50326.1; -
DR PIR; S30053; S30053.
DR HSSP; P15494; 1BTV.
DR INTERPRO; IPR000916; -
DR PFAM; PF00407; Bet_v_1; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS_BETV1; 1.
KW Allergen; Pathogenesis-related protein; Multigene family.
FT FT INT_MET 0
FT VARIANT 7 7 V -> A (IN CLONE COR A 1/11).
FT VARIANT 10 10 P -> T (IN CLONE COR A 1/11).
FT VARIANT 14 14 P -> S (IN CLONE COR A 1/16).
FT VARIANT 45 45 E -> G (IN CLONE COR A 1/16).
FT VARIANT 80 80 T -> K (IN CLONE COR A 1/6 AND 1/16).
FT VARIANT 100 100 H -> S (IN CLONE COR A 1/6 AND 1/16).
FT VARIANT 113 113 I -> T (IN CLONE COR A 1/16).
FT VARIANT 133 133 M -> I (IN CLONE COR A 1/11).
SQ SEQUENCE 159 AA; 17381 MW; E0F5E2A218E8D768 CRC64;
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Query Match 74.6%; Score 610; DB 1; Length 159;  
Best focal Similarity 71.7%; Pred. No. 1.4e-46;

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Matches 114; Conservative 22; Mismatches 23; Indels 0; Gaps 0;
QY 1 GVENFEAEPTSVIPARLFRKSYVLDDGDKLIPKAPQVYSSEVNGGSGGTIKNTFAE 60
DB 1 GVENFEAEPTSVIPARLFRKSYVLDDGDKLIPKAPQVYSSEVNGGSGGTIKNTFAE 60
QY 61 GLPEFYVKRVDVNDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPDGSLIKSNKY 120
DB 61 GLPEFYVKRVDVNDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPDGSLIKSNKY 120
OY 121 HTKGDEHVAEKQYKASKEMGETLLRAVESYLLAHSDAYN 159
DB 121 HTKGDEHVAEKQYKASKEMGETLLRAVESYLLAHSDAYN 159

Search completed: December 11, 2000, 10:43:18
Job time: 110 sec
```

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: December 11, 2000, 10:41:14 ; Search time 18.74 Seconds  
(without alignments)  
792.235 Million cell updates/sec

Title: US-09-270-910-37-COPY  
Perfect score: 818  
Sequence: 1 GFVNETETTSVIPARLFK.....GETLLRAVESYLLAHSDAYN 159

Scoring table: BIOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues

Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: SPTRMBL\_14:\*  
2: sp.archaea:\*  
3: sp.fungi:\*  
4: sp.human:\*  
5: sp.invertebrate:\*  
6: sp.mammal:\*  
7: sp.mhc:\*  
8: sp.organelle:\*  
9: sp.phage:\*  
10: sp.plant:\*  
11: sp.todent:\*  
12: sp.virus:\*  
13: sp.vertebrate:\*  
14: sp.unclassified:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	809	98.9	160	10	Q96366
2	807	98.7	160	10	Q24642
3	805	98.4	160	10	Q42499
4	803	98.2	160	10	Q23752
5	802	97.0	160	10	Q96371
6	801	97.9	160	10	Q96370
7	800	97.8	160	10	Q96370
8	799	97.7	160	10	Q96370
9	799	97.7	160	10	Q96370
10	798	97.6	160	10	Q96365
11	798	97.6	160	10	Q96365
12	796	97.3	160	10	Q96368
13	796	97.3	160	10	Q96368
14	795	97.2	160	10	Q96368
15	794	97.1	160	10	Q96368
16	793	96.9	160	10	Q96367
17	793	96.9	160	10	Q96367
18	793	96.9	160	10	Q96367
19	791	96.7	160	10	Q23754

20	790	96.6	160	10	Q39426
21	788	96.3	160	10	Q23751
22	787	96.2	160	10	Q96366
23	784	95.8	160	10	Q96366
24	783	95.7	160	10	Q96366
25	782	95.6	160	10	Q96366
26	777	95.0	160	10	Q96366
27	770	94.1	160	10	Q96366
28	768	93.9	160	10	Q96366
29	746	91.2	160	10	Q96366
30	739	90.3	160	10	Q96366
31	738	90.2	160	10	Q96366
32	736	90.0	160	10	Q96366
33	735	89.9	160	10	Q96366
34	731	89.4	160	10	Q96366
35	702	85.8	160	10	Q96366
36	698	85.3	160	10	Q96366
37	695	85.0	160	10	Q96366
38	695	85.0	160	10	Q96366
39	683	83.5	160	10	Q96366
40	659	80.6	160	10	Q96366
41	640	78.2	160	10	Q96366
42	639	78.1	160	10	Q96366
43	638	78.0	160	10	Q96366
44	629	76.9	160	10	Q96366
45	622	76.0	160	10	Q96366

## ALIGNMENTS

RESULT 1  
ID Q96366 PRELIMINARY; PRT; 160 AA.

AC 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (White birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/GenBank/DBJ databases.  
CC -! SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED PROTEIN.  
DR EMBL; Z80101; CAB02156.1; -.  
DR HSSP; P13494; IRTV.  
DR MENDEL; 30889; setve;1174;30889.  
DR INTERPRO; IPR000916; -.  
DR PFW; PF00407; bet.v.1; 1.  
DR PRINTS; PS00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
DR PRODOM; PD000531; -; 1.  
KW pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17557 MW; B2174110A9588AD4 CRC64;

Query Match 98.9%; Score 809; DB 10; Length 160;  
Best Local Similarity 98.1%; Pred. No. 8.4e-62;  
Matches 156; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNETETTSVIPARLFKAFILGDNLFPRVAPQAISSVNISSGSGPGTIKISFPE 60  
DB 2 GFVNETETTSVIPARLFKAFILGDNLFPRVAPQAISSVNISSGSGPGTIKISFPE 61  
QY 61 GPFKVKRQVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 120  
DB 62 GPFKVKRQVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY 121

QY	121	HTKGDHEVAKAEQVAKSKEMGETLLRAVESYLLAHSDAYN	159
DB	122	HTKGDHEVAKAEQVAKSKEMGETLLRAVESYLLAHSDAYN	160
RESULT	2		
Q24642			
ID	Q24642	PRELIMINARY:	PRT: 160 AA.
AC	Q24642		
DT	01-JAN-1998 (TREMBLrel. 05, Created)		
DT	01-JAN-1998 (TREMBLrel. 05, Last sequence update)		
DT	01-JUN-2000 (TREMBLrel. 14, Last annotation update)		
DE	POLLEN ALLERGEN BETV1.		
GN	BETV1.		
OS	Betula verrucosa (White birch) (Betula pendula).		
OC	Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;		
OC	Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;		
OC	Betulaceae; Betula.		
RC	[1]		
RP	SEQUENCE FROM N.A.		
RC	TISSUE-POLLEN;		
RA	Friedl-Hajek K., Radauer C., Hoffmann-Sommergruber K., Leberl K.,		
RA	Riordan G., Scheiner O., Breiteneder H.;		
RL	Submitted (OCR-1997) to the EMBL/GenBank/DBJ databases.		
CC	-1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED		
CC	PROTEIN.		
DR	EMBL: AJ002109; CA05189.1; -;		
DR	EMBL: AJ002107; CA05187.1; -;		
DR	HSSP: P15494; IBTV.		
DR	MEDEL: 24383; Betve;1174;24383.		
DR	INTERPRO: IPR000916; -;		
DR	PFAM: PF00407; Bet.v.I; 1.		
DR	PRINTS: PR00634; BETALLERGEN.		
DR	PROSITE: PS00451; PATHOGENESIS_BETV1; 1.		
DR	PRODOM: PD000531; -; 1.		
KW	Pathogenesis-related protein.		
SO	SEQUENCE 160 AA; 17589 MW; DBA0110BD1CDAC0 CRC64;		
Query Match	98.7%;	Score 807;	DB 10; Length 160;
Best Local Similarity	98.1%;	Pred. No. 1.2e-61;	
Matches 156; Conservative 1;	Mismatches 2;	Indels 0;	Gaps 0;
QY	1	GVENETETTSVIPARLFKAFILLOGDNLFPRVAPPAISSVENISGNGPGTIKTSIPE	60
DB	2	GVENETETTSVIPARLFKAFILLOGDNLFPRVAPPAISSVENISGNGPGTIKTSIPE	61
QY	61	GLPFYVVDVNDVHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISNKY	120
DB	62	GFPEFYVVDVNDVHTNFKYNSVIEGGPGDTLEKISNEIKIYATPDGGSILKISNKY	121
QY	121	HTKGDHEVAKAEQVAKSKEMGETLLRAVESYLLAHSDAYN	159
DB	122	HTKGDHEVAKAEQVAKSKEMGETLLRAVESYLLAHSDAYN	160
RESULT	3		
Q242499			
ID	Q242499	PRELIMINARY:	PRT: 160 AA.
AC	Q242499		
DT	01-NOV-1996 (TREMBLrel. 01, Created)		
DT	01-NOV-1996 (TREMBLrel. 01, Last sequence update)		
DT	01-JUN-2000 (TREMBLrel. 14, Last annotation update)		
DE	MAJOR ALLERGEN BET V 1.		
GN	BETV1.		
OS	Betula verrucosa (White birch) (Betula pendula).		
OC	Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;		
OC	Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;		
OC	Betulaceae; Betula.		
RC	[1]		
RP	SEQUENCE FROM N.A.		
RC	TISSUE-LEAF;		

RA Hoffmann-Sommergruber K.;  
 RL Submitted (May-1996) to the EMBL/Genbank/DBJ databases.

RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=POLLEN;  
 RA Friedl-Haek R., Radauer C., O'Riordan G., Hoffmann-Sommergruber K.,  
 RA Leberl K., Scheiner O., Breiteneder H.;  
 RT "New Betv1 isoforms including a naturally occurring truncated form of  
 the protein derived from Austrian birch pollen."  
 RL Submitted (JUN-1998) to the EMBL/Genbank/DBJ databases.

CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
 PROTEIN.

DR EMBL: 272432; CAA96541.1; -;  
 DR EMBL: 272429; CAA96538.1; -;  
 DR EMBL: AJ006907; CAA07322.1; -;  
 DR HSSP: P15494; 1HTV;  
 DR MENDEL: 30817; Betve;1174;30817;  
 DR MENDEL: 36840; Betve;1174;36840;  
 DR INTERPRO: IPR000916; -;  
 DR PFWA: PF00407; bet\_v\_1; 1.  
 DR PRINTS: PRO0634; BETALLERGEN.  
 DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
 DR PRODOM: PD000531; -; 1.  
 KW Pathogenesis-related protein.  
 SQ SEQUENCE 160 AA; 17541 MW; E3950410AF8B5096 CRC64;

QY Query Match 98.4%; Score 805; DB 10; Length 160;  
 Best Local Similarity 98.1%; Pred. No.1.8e-61;  
 Matches 156; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

DB 1 GFVNTEETTVIVIPARLFKAFILDDGDLFPKVPDAQIAISVVENISGNGPGTIKKISPE 60  
 2 GFVNTEETATSVIPARLFKAFILDDGDLFPKVPDAQIAISVVENISGNGPGTIKKISPE 61

QY 61 GPFKTVYVDROVDVHTNPKVYSVIEGPGDTEKISNEKIYATPDGSGILKISKY 120  
 62 GPFKTVYVDROVDVHTNPKVYSVIEGPGDTEKISNEKIYATPDGSGILKISKY 121

QY 121 HTKGDEYKAEQYKASKEMGETLLRAVDSYLLAHSDAYN 159  
 122 HTKGDEYKAEQYKASKEMGETLLRAVDSYLLAHSDAYN 160

DB 122 HTKGDEYKAEQYKASKEMGETLLRAVDSYLLAHSDAYN 160

RESULT 4  
 023752 PRELIMINARY; PRT; 160 AA.

AC 023752  
 DT 01-JAN-1998 (TREMBLrel. 05, Created)  
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)  
 DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
 DE POLLEN ALLERGEN BETV1.  
 GN BETV1.  
 OS Betula verrucosa (White birch) (Betula pendula).  
 CC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
 CC Magnoliophyta; eudicotyledons; Rosidae; eustosids I; Fagales;  
 CC Betulaceae; Betula.  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=POLLEN;  
 RA Friedl-Haek R., Radauer C., Hoffmann-Sommergruber K., Leberl K.,  
 RA O'Riordan G., Scheiner O., Breiteneder H.;  
 RT Submitted (OCT-1997) to the EMBL/Genbank/DBJ databases.

CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED  
 PROTEIN.

DR EMBL: AJ002108; CAA05188.1; -;  
 DR HSSP: P15494; 1HTV;  
 DR MENDEL: 26841; Betve;1174;26841;  
 DR INTERPRO: IPR000916; -;  
 DR PFWA: PF00407; bet\_v\_1; 1.  
 DR PRINTS: PRO0634; BETALLERGEN.  
 DR PROSITE: PS00451; PATHOGENESIS\_BETV1; 1.  
 DR PRODOM: PD000531; -; 1.

KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17523 MW; 69B110BBDA1ADD CRC64;

Query Match 98.2%; Score 803; DB 10; Length 160;  
Best Local Similarity 98.1%; Pred. No. 2.7e-61;  
Matches 156; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 60  
DB 2 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 61  
QY 61 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 120  
DB 62 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 121  
QY 121 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 160

## RESULT 5

Q96371 PRELIMINARY; PRT; 160 AA.

AC Q96371;  
DT 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (white birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/Genbank/DBJ databases.  
CC -! SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED  
CC PROTEIN.  
EMBL: 280106; CAB02161.1; -.  
DR HSSP; P15494; 1BTV.  
DR MENDEL; 30893; Betve;1174;30893.  
DR INTERPRO; IPR000916; -.  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
DR PRODOM; PD000531; -. 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17670 MW; 69B4410BBA6A1AC6 CRC64;

Query Match 98.0%; Score 802; DB 10; Length 160;  
Best Local Similarity 98.1%; Pred. No. 3.3e-61;  
Matches 156; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 60  
DB 2 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 61  
QY 61 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 120  
DB 62 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 121  
QY 121 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 160

RESULT 6  
Q9SCH8 PRELIMINARY; PRT; 160 AA.  
ID Q9SCH8;  
AC Q9SCH8;

DT 01-MAY-2000 (TREMBLrel. 13, Created)  
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BETVI, ISOFORM AT50.

GN BETVI.  
OS Betula verrucosa (white birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN;  
RA Friedl-Hajek R., Radauer C., Riordan G., Hoffmann-Sommergruber K.,  
RA Leberl K., Scheiner O., Breiteneder H.;  
RT "New Bet v 1 isoforms including a naturally occurring truncated form  
of the protein derived from Austrian birch pollen.";  
RL Mol. Immunol. 36:639-645(1999).  
DR EMBL; AJ006911; CAA07326.1; -.  
DR INTERPRO; IPR000916; -.  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
SQ SEQUENCE 160 AA; 17631 MW; DBA9575C4C393DA0 CRC64;

Query Match 97.9%; Score 801; DB 10; Length 160;  
Best Local Similarity 96.9%; Pred. No. 4e-61;  
Matches 154; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 60  
DB 2 GFVNFTETTSVTPARLTKAFILDDGDLFPKAPQAISSEVENISNGSGPGTIKISFPE 61  
QY 61 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 120  
DB 62 GPEFKYKRVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIVATPPGGSTLKISNRY 121  
QY 121 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 159  
DB 122 HTKGDHEVKAEOVKASKEMGETILRAVESYLLAHSDAYN 160

## RESULT 7

Q96370 PRELIMINARY; PRT; 160 AA.

AC Q96370;  
DT 01-FEB-1997 (TREMBLrel. 02, Created)  
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)  
DE POLLEN ALLERGEN BET V 1.  
OS Betula verrucosa (white birch) (Betula pendula).  
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;  
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;  
OC Betulaceae; Betula.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE-POLLEN OBTAINED FROM ALLERGEN, SWEDEN;  
RA Larsen J.N.;  
RL Submitted (SEP-1996) to the EMBL/Genbank/DBJ databases.  
CC -! SIMILARITY: BELONGS TO THE BETVI FAMILY OF PATHOGENESIS-RELATED  
CC PROTEIN.  
EMBL: 280105; CAB02160.1; -.  
DR HSSP; P15494; 1BTV.  
DR MENDEL; 30892; Betve;1174;30892.  
DR INTERPRO; IPR000916; -.  
DR PFAM; PF00407; Bet\_v\_1; 1.  
DR PRINTS; PR00634; BETALLERGEN.  
DR PROSITE; PS00451; PATHOGENESIS\_BETVI; 1.  
DR PRODOM; PD000531; -. 1.  
KW Pathogenesis-related protein.  
SQ SEQUENCE 160 AA; 17541 MW; DBA110BBD1CDADB CRC64;

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Query Match          97.8%; Score 800; DB 10; Length 160;
Best Local Similarity 97.5%; Pred. No. 4,9e-61;
Matches 155; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
DB 2 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 61
QY 61 GLPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 62 GFPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 121
QY 121 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 159
DB 122 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 160

RESULT 8
Q9SC10 PRELIMINARY; PRT; 160 AA.
AC Q9SC10;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE POLLEN ALLERGEN BETV1, ISOFORM AT37.
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN.
RA Friedl-Hajek R., Radauer C., Riordain G., Hoffmann-Sommergruber K.,
RA Leberl K., Scheiner O., Breiteneder H.;
RT "New Bet v 1 isoforms including a naturally occurring truncated form
RT of the protein derived from Austrian birch pollen.";
RL MBL, Immunol. 36:639-645(1999).
DR EMBL; AJ006908; CAA07323.1; -.
DR INTERPRO; IPR000916; -.
DR PFAM; PF00407; Bet_v_1; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS_BETV1; 1.
SQ SEQUENCE 160 AA; 17572 MW; 99A3581E5B3A03FB CRC64;

Query Match          97.7%; Score 799; DB 10; Length 160;
Best Local Similarity 96.9%; Pred. No. 5,9e-61;
Matches 154; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
DB 2 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 61
QY 61 GLPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 62 GFPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 121
QY 121 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 159
DB 122 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 160

RESULT 9
Q9SCH9 PRELIMINARY; PRT; 160 AA.
AC Q9SCH9;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE POLLEN ALLERGEN BETV1, ISOFORM AT45.
GN BETV1.
OS Betula verrucosa (White birch) (Betula pendula).

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OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN.
RA Friedl-Hajek R., Radauer C., Riordain G., Hoffmann-Sommergruber K.,
RA Leberl K., Scheiner O., Breiteneder H.;
RT "New Bet v 1 isoforms including a naturally occurring truncated form
RT of the protein derived from Austrian birch pollen.";
RL MBL, Immunol. 36:639-645(1999).
DR EMBL; AJ006910; CAA07325.1; -.
DR INTERPRO; IPR000916; -.
DR PFAM; PF00407; Bet_v_1; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS_BETV1; 1.
DR PRODOM; PD000531; -.
KV Pathogenesis-related protein.
SQ SEQUENCE 160 AA; 17615 MW; 5A2A67BCC45CA3E CRC64;

Query Match          97.7%; Score 799; DB 10; Length 160;
Best Local Similarity 96.9%; Pred. No. 5,9e-61;
Matches 154; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60
DB 2 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 61
QY 61 GLPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 120
DB 62 GFPEKYVDRVDEVDHTNFKYNSVIEGGPIDTLEKISNEIKIYATPDGGSILKISNKY 121
QY 121 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 159
DB 122 HTKGDHEVKAEOVKASKEMGETLLRAVESYLLAHSDAVN 160

RESULT 10
Q96365 PRELIMINARY; PRT; 160 AA.
AC Q96365;
DT 01-FEB-1997 (TREMBLrel. 02, Created)
DT 01-FEB-1997 (TREMBLrel. 02, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE POLLEN ALLERGEN BET V 1.
OS Betula verrucosa (White birch) (Betula pendula).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids I; Fagales;
OC Betulaceae; Betula.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-POLLEN OBTAINED FROM ALLERCON, SWEDEN;
RA Larsen J.N.;
RT Submitted (SSP-1996) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: BELONGS TO THE BETV1 FAMILY OF PATHOGENESIS-RELATED
CC PROTEIN.
DR EMBL; Z80100; CAB02155.1; -.
DR HSSP; P15494; BETV.
DR MENDEL; 30888; Betv.1174; 30888.
DR INTERPRO; IPR000916; -.
DR PFAM; PF00407; Bet_v_1; 1.
DR PRINTS; PR00634; BETALLERGEN.
DR PROSITE; PS00451; PATHOGENESIS_BETV1; 1.
DR PRODOM; PD000531; -.
KV Pathogenesis-related protein.
SQ SEQUENCE 160 AA; 17558 MW; 4200581E49B893B9 CRC64;

Query Match          97.6%; Score 798; DB 10; Length 160;
Best Local Similarity 96.2%; Pred. No. 7,2e-61;
Matches 153; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 GFVNTEETTSYIPARLFKAFILDDGNLFPKVAPOAISSEVENISGNGPGTIKISFPE 60

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GenCore version 4.5  
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 11, 2000, 10:38:23 ; Search time 12.26 Seconds  
(without alignments)  
217.376 Ml. 1 cell updates/sec

Title: US-09-270-910-37-COPY  
Perfect score: 818  
Sequence: 1 GVFNYETETTSVIPARLFK.....GETLLRAVESYLLAHSDAYN 159

Scoring table:  
BIOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: Issued\_Patents\_AA:\*  
2: /cgn2\_6/ptodata/2/1aa/5A.COMB.pep:\*  
3: /cgn2\_6/ptodata/2/1aa/5B.COMB.pep:\*  
4: /cgn2\_6/ptodata/2/1aa/6.COMB.pep:\*  
5: /cgn2\_6/ptodata/2/1aa/PCITUS.COMB.pep:\*  
6: /cgn2\_6/ptodata/2/1aa/Dackfilest1.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match length	ID	Description
1	810	99.0	160 1	US-07-847-010-23 Sequence 23, Appl
2	678	82.9	160 1	US-07-847-010-3 Sequence 3, Appl
3	616	75.3	160 1	US-07-847-010-14 Sequence 14, Appl
4	616	75.3	160 1	US-07-847-010-17 Sequence 17, Appl
5	610	74.6	160 1	US-07-847-010-11 Sequence 11, Appl
6	603	73.7	160 1	US-07-847-010-20 Sequence 20, Appl
7	372	45.5	158 5	5312912-2 Patent No. 5312912
8	276.5	33.6	154 1	US-08-363-010-1 Sequence 1, Appl
9	274.5	33.6	154 1	US-08-911-434A-4 Sequence 4, Appl
10	240	29.3	158 3	US-08-199-219-6 Sequence 6, Appl
11	79	9.7	669 2	US-08-357-533A-8 Sequence 8, Appl
12	79	9.7	669 2	US-08-459-009-8 Sequence 8, Appl
13	79	9.7	669 2	US-08-459-951-8 Sequence 8, Appl
14	78	9.5	1442 2	US-08-316-650-12 Sequence 12, Appl
15	78	9.5	1442 2	PCT-US95-02251-12 Sequence 12, Appl
16	75.5	9.2	3135 1	US-08-323-170B-2 Sequence 2, Appl
17	72	8.8	1008 2	US-08-680-326-30 Sequence 30, Appl
18	71.5	8.7	341 2	US-08-538-711A-7 Sequence 8, Appl
19	71.5	8.7	353 2	US-08-538-711A-7 Sequence 7, Appl
20	71.5	8.7	322 2	RE34606-6 Patent No. RE34606
21	70	8.6	1577 2	US-08-793-824-2 Sequence 2, Appl
22	69.5	8.5	836 1	US-08-426-627-6 Sequence 6, Appl
23	69.5	8.5	837 1	US-08-426-627-23 Sequence 23, Appl
24	69	8.4	436 3	US-08-669-378-2 Sequence 2, Appl
25	69	8.4	436 3	US-08-669-378-4 Sequence 4, Appl
26	69	8.4	436 3	US-08-669-378-6 Sequence 6, Appl
27	69	8.4	436 3	US-08-669-378-10 Sequence 10, Appl
28	69	8.4	436 3	US-08-669-378-12 Sequence 12, Appl

29	69	8.4	997 2	US-08-387-942C-4 Sequence 4, Appl
30	68.5	8.4	769 3	US-09-320-878-12 Sequence 12, Appl
31	67	8.2	780 1	US-08-485-621-2 Sequence 2, Appl
32	67	8.2	780 2	US-08-973-831-2 Sequence 2, Appl
33	67	8.2	780 4	PCT-US96-09350A-2 Sequence 2, Appl
34	67	8.2	983 2	US-08-164-292B-26 Sequence 26, Appl
35	67	8.2	983 3	US-08-845-623-26 Sequence 26, Appl
36	67	8.2	983 3	US-08-815-927-26 Sequence 26, Appl
37	67	8.2	1183 2	US-08-447-031A-2 Sequence 2, Appl
38	66.5	8.1	906 1	US-08-486-270-2 Sequence 2, Appl
39	66.5	8.1	906 3	US-08-367-264-2 Sequence 2, Appl
40	66	8.1	310 1	US-08-129-456A-37 Sequence 37, Appl
41	66	8.1	436 3	US-08-669-378-8 Sequence 8, Appl
42	66	8.1	720 1	US-07-731-157A-2 Sequence 2, Appl
43	66	8.1	720 2	US-08-541-780-2 Sequence 2, Appl
44	66	8.1	1147 3	US-08-470-260-5 Sequence 5, Appl
45	66	8.1	1147 3	US-08-471-491-5 Sequence 5, Appl

## ALIGNMENTS

RESULT 1  
US-07-847-010-23  
Sequence 23, Application US/07847010  
Patent No. 5693495.  
GENERAL INFORMATION:  
APPLICANT: Breiteneder, Helmo  
APPLICANT: Reikerstorfer, Arnold  
APPLICANT: Valenta, Rudolf  
APPLICANT: Hoffmann - Sommergruber, Karin  
APPLICANT: Breitenbach, Michael  
APPLICANT: Kraft, Dietrich  
APPLICANT: Rumpold, Helmut  
APPLICANT: Schallner, Otto  
APPLICANT: Edner, Christof  
APPLICANT: Ferreira, Fatima  
TITLE OF INVENTION: Allergens of Alder Pollen and  
TITLE OF INVENTION: Applications Thereof  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Panle & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 23:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 160 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: birch (Betula sp.)

; IMMEDIATE SOURCE: .  
 ; LIBRARY: POLLEN FROM ALLERGEN AB, ENGELHOLM, SWEDEN  
 US-07-847-010-23

Query Match	99.0%	Score 810	DB 1	Length 160
Best Local Similarity	98.7%	Pred. NO. 4.9e-82		
Matches 157; Conservative	0	Mismatches 2	Indels 0	Gaps 0

QY	1	GVENETETTSVTPAARJFKAFLIDGDMLPRVAPQAISSEVNTSGNPGPTIKKISFE	60
Db	2	GVENETETTSVTPAARJFKAFLIDGDMLPRVAPQAISSEVNTSGNPGPTIKKISFE	61
QY	61	GLPEFYVADRYDEVNHTFNKKNYSVIEBGGIDTLEKISNEIKIYAAPDGGSLIKISNKY	120
Db	62	GLPEFYVADRYDEVNHTFNKKNYSVIEBGGIDTLEKISNEIKIYAAPDGGSLIKISNKY	122
QY	121	HTKGDHEVKAEOVKASKEMGETLLRAVVSYLLAASDAVN	159
Db	122	HTKGDHEVKAEOVKASKEMGETLLRAVVSYLLAASDAVN	160

RESULT 2  
US-07-847-010-3  
; Sequence 3, Application US/07847010  
; Patent No. 5693495  
; GENERAL INFORMATION:

APPLICANT: Breiteneder, Helmo  
 APPLICANT: Reikertstorfer, Arnold  
 APPLICANT: Valenta, Rudolf  
 APPLICANT: Hoffmann - Sommergruber, Karin  
 APPLICANT: Breitenbach, Michael  
 APPLICANT: Kraft, Dietrich  
 APPLICANT: Rumpold, Helmut  
 APPLICANT: Scheiner, Otto  
 APPLICANT: Ebner, Christof  
 APPLICANT: Ferrelta, Fatima  
 TITLE OF INVENTION: Allergens of Alder Pollen and  
 TITLE OF INVENTION: Applications Thereof  
 NUMBER OF SEQUENCES: 23  
 CORRESPONDENCE ADDRESS:

1 ADDRESSEE: Pennie & Edmonds  
2 STREET: 1155 Avenue of the Americas  
3 City: New York  
4 STATE: New York  
5 COUNTRY: U.S.A.  
6 ZIP: 10036-2711  
7  
8 COMPUTER READABLE FORM:  
9 MEDIUM TYPE: Floppy disk  
10 COMPUTER: IBM PC compatible  
11 OPERATING SYSTEM: PC-DOS/MS-DOS  
12 SOFTWARE: Patent Release #1.0, Version #1.25  
13  
14 CURRENT APPLICATION DATA:  
15 APPLICATION NUMBER: US/07/847,010  
16 FILING DATE: 01-JUN-1992

```

CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Jones II, Harry C
REGISTRATION NUMBER: 20,280
REFERENCE/DOCKET NUMBER: 6530-010
TELECOMMUNICATIONS INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 863-9741/8664
TELEX: 66141 PENNTE
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 160 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ORIGINAL SOURCE:
ORGANISM: Alder (Alnus sp.)

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US-07-847-010-3

Query Match	1	82.9%	Score 678;	DB 1;	Length 160;
Best Local Similarity		80.5%;	Pred. No. 1.9e-67;		
Matches 128; conservative	12;	Mismatches 19;	Indels 0;	Gaps 0	

[illegible]

RESULT 3  
US-07-847-010-14  
; Sequence 14, Application US/0784701C  
; Patent No. 5693495  
; GENERAL INFORMATION:

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ADDRESSEE: Pennate & Edmonds  
STREET: 1155 Avenue of the Americas  
CITY: New York  
STATE: New York  
COUNTRY: U.S.A.  
ZIP: 10036-2711  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/847,010  
FILING DATE: 01-JUN-1992

CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Jones III, Harry C  
REGISTRATION NUMBER: 20,280  
REFERENCE/DOCKET NUMBER: 6530-010  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (212) 790-9090  
TELEFAX: (212) 869-9741/8864  
TELEX: 66141 PENNIE  
INFORMATION FOR SEQ ID NO: 14:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 160 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
ORIGINAL SOURCE:  
ORGANISM: hazel (*Corylus* sp.)  
IMMEDIATE SOURCE:  
LIBRARY: POLLEN FROM ALLENGON AB, ENGELHOLM, SWEDEN







Db 5 SMSHEVAVNAAGRMFKAMLDHNLGPKIVDFEINGSVSGSGVTIREIKINNPAT 64  
 QY 63 PKFYKDDVDEVDHTNFKYNSVIEGGPIGDTLEKISNEIKIYATPDGGSILKISKNYH 122  
 Db 65 PFSYKEDLDYVDHDKFEKQTLVBGGGLGKMEFCATTFKFEPPSSNGCLVKVASTY-- 122  
 QY 123 KGDHEKAEQVAKSKEMGETLLRAVESYLLASHDAY 158  
 Db 123 KILPGVADESAKA-KEGILNHNKATEAYLLANPTAY 157

RESULT 11  
 US-08-357-533A-8  
 ; Sequence 8, Application US/08357533A  
 ; Patent No. 5831050  
 ; GENERAL INFORMATION:  
 ; APPLICANT: JIN, DONALD F  
 ; APPLICANT: OPPERMAN, HERMANN  
 ; APPLICANT: KUBERASAMPATH, THANGAVEL  
 ; APPLICANT: SMART, JOHN E  
 ; TITLE OF INVENTION: NOVEL MORPHOGEN CELL SURFACE RECEPTOR  
 ; NUMBER OF SEQUENCES: 12  
 ; CORRESPONDENCE ADDRESS:  
 ; ADDRESSEE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES,  
 ; INC  
 ; STREET: 45 SOUTH STREET  
 ; CITY: HOPKINTON  
 ; STATE: MA  
 ; COUNTRY: USA  
 ; ZIP: 01748  
 ; COMPUTER READABLE FORM:  
 ; MEDIUM TYPE: Floppy disk  
 ; COMPUTER: IBM PC compatible  
 ; OPERATING SYSTEM: PC-DOS/MS-DOS  
 ; SOFTWARE: PatentIn Release #1.0, Version #1.25  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/08/357,533A  
 ; FILING DATE: 16-DEC-1994  
 ; CLASSIFICATION: 435  
 ; ATTORNEY/AGENT INFORMATION:  
 ; NAME: KELLY, ROBIN D  
 ; REGISTRATION NUMBER: 34,637  
 ; REFERENCE/DOCKET NUMBER: CRP-073FW  
 ; TELECOMMUNICATION INFORMATION:  
 ; TELEPHONE: (508)-435-9001  
 ; TELEFAX: (508)-435-0992  
 ; INFORMATION FOR SEQ ID NO: 8:  
 ; SEQUENCE CHARACTERISTICS:  
 ; LENGTH: 669 amino acids  
 ; TYPE: amino acid  
 ; STRANDEDNESS: single  
 ; TOPOLOGY: linear  
 ; MOLECULE TYPE: protein  
 ; FEATURE:  
 ; NAME/KEY: Protein  
 ; LOCATION: 1..669  
 ; OTHER INFORMATION: /note= "C ELEGANS RECEPTOR KINASE"  
 ; US-08-357-533A-8

Query Match 9.7%; Score 79; DB 2; Length 669;  
 Best Local Similarity 24.5%; Pred. No. 2.2;  
 Matches 39; Conservative 25; Mismatches 53; Indels 42; Gaps 9;  
 QY 8 ETTSVIPARLFKAFILDGD---NLFPKYAP--QAISSEVENISGNGGPGTIIKISPEGL 62  
 Db 216 ETENNVPVWTM-----GDGAGSSVPEVAPIDEGGSTMTSAGN-----SFPPI 259  
 QY 63 PKFYKDDVDEVDHTNFKYNSVIEGGPIG-DTLEK--ISNEIKIYATPDGGSILKISKN 119  
 Db 260 MPNNKMDLDVLEETS-----GSGMGPTTLHKLTIGGQIRLTGRVSGRFGNVS-- 308  
 QY 120 YHTKGDEHVKAEQVAKSKEMGETLL---RAVESYLLAH 154

Db 309 ---RGDYRGEAVAVKVFNALDEPAFHKETEIFETMLRH 344

RESULT 12  
 US-08-459-009-8  
 ; Sequence 8, Application US/08459009  
 ; Patent No. 5861479  
 ; GENERAL INFORMATION:  
 ; APPLICANT: JIN, DONALD F  
 ; APPLICANT: OPPERMAN, HERMANN  
 ; APPLICANT: KUBERASAMPATH, THANGAVEL  
 ; APPLICANT: SMART, JOHN E  
 ; TITLE OF INVENTION: NOVEL MORPHOGEN CELL SURFACE RECEPTOR  
 ; NUMBER OF SEQUENCES: 12  
 ; CORRESPONDENCE ADDRESS:  
 ; ADDRESSEE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES,  
 ; INC  
 ; STREET: 45 SOUTH STREET  
 ; CITY: HOPKINTON  
 ; STATE: MA  
 ; COUNTRY: USA  
 ; ZIP: 01748  
 ; COMPUTER READABLE FORM:  
 ; MEDIUM TYPE: Floppy disk  
 ; COMPUTER: IBM PC compatible  
 ; OPERATING SYSTEM: PC-DOS/MS-DOS  
 ; SOFTWARE: PatentIn Release #1.0, Version #1.25  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/08/459,009  
 ; FILING DATE:  
 ; CLASSIFICATION: 435  
 ; PRIOR APPLICATION DATA:  
 ; APPLICATION NUMBER: US 08/357,533  
 ; FILING DATE: 16-DEC-1994  
 ; ATTORNEY/AGENT INFORMATION:  
 ; NAME: KELLY, ROBIN D  
 ; REGISTRATION NUMBER: 34,637  
 ; REFERENCE/DOCKET NUMBER: CRP-073FW  
 ; TELECOMMUNICATION INFORMATION:  
 ; TELEPHONE: (508)-435-9001  
 ; TELEFAX: (508)-435-0992  
 ; INFORMATION FOR SEQ ID NO: 8:  
 ; SEQUENCE CHARACTERISTICS:  
 ; LENGTH: 669 amino acids  
 ; TYPE: amino acid  
 ; STRANDEDNESS: single  
 ; TOPOLOGY: linear  
 ; MOLECULE TYPE: protein  
 ; FEATURE:  
 ; NAME/KEY: Protein  
 ; LOCATION: 1..669  
 ; OTHER INFORMATION: /note= "C ELEGANS RECEPTOR KINASE"  
 ; US-08-459-009-8

Query Match 9.7%; Score 79; DB 2; Length 669;  
 Best Local Similarity 24.5%; Pred. No. 2.2;  
 Matches 39; Conservative 25; Mismatches 53; Indels 42; Gaps 9;  
 QY 8 ETTSVIPARLFKAFILDGD---NLFPKYAP--QAISSEVENISGNGGPGTIIKISPEGL 62  
 Db 216 ETENNVPVWTM-----GDGAGSSVPEVAPIDEGGSTMTSAGN-----SFPPI 259  
 QY 63 PKFYKDDVDEVDHTNFKYNSVIEGGPIG-DTLEK--ISNEIKIYATPDGGSILKISKN 119  
 Db 260 MPNNKMDLDVLEETS-----GSGMGPTTLHKLTIGGQIRLTGRVSGRFGNVS-- 308  
 QY 120 YHTKGDEHVKAEQVAKSKEMGETLL---RAVESYLLAH 154  
 Db 309 ---RGDYRGEAVAVKVFNALDEPAFHKETEIFETMLRH 344



CITY: Houston  
STATE: Texas  
COUNTRY: United States of America  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS/ASCII  
SOFTWARE: Patent Release #1.0, Version  
SOFTWARE: #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US95/02251  
FILING DATE: CONCURRENTLY HERewith  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/316,650  
FILING DATE: 30-SEP-1994  
CLASSIFICATION:  
APPLICATION NUMBER: US 08/199,780  
FILING DATE: 18-FEB-1994  
CLASSIFICATION:  
ATTORNEY/AGENT INFORMATION:  
NAME: Parker, David L.  
REGISTRATION NUMBER: 32,165  
REFERENCE/DOCKET NUMBER: DMIC009P--  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (512) 418-3000  
TELEFAX: (713) 789-2679  
TELEX: 79-0924  
INFORMATION FOR SEQ ID NO: 12:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 1442 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
PCT-US95-02251-12

Query Match 9.5%; Score 78; DB 4; Length 1442;  
Best Local Similarity 24.1%; Pred. No. 8.8;  
Matches 38; Conservative 18; Mismatches 52; Indels 50; Gaps 7;  
QY 25 DGDNLFP-----KYAPQAISSEVENISGNGGPGTIRKISFPEGL----- 62  
DB 1130 DGSNGIPGPICPPGRSGRSGETGPGPPGPPGPGI--DMSAFAGLGOREKG 1187  
QY 63 --PKKYKDRDEVDTHTFKYNYSYIEGGPIGDTLEKISNEIKIYATPDG-----S 112  
DB 1188 PDPWQYM--RADPADSTLRQHDVEY-----DATLKSINNOIESIRSPGSRKNPAPTCQ 1239  
QY 113 LKISNKYHTKGDHVKAEQ-----VKASKENGET 142  
DB 1240 DLKCHPEMKSGDYWIDPNQCTLDAMKVFQCMETGET 1277

Search completed: December 11, 2000, 10:41:41  
Job time: 198 sec